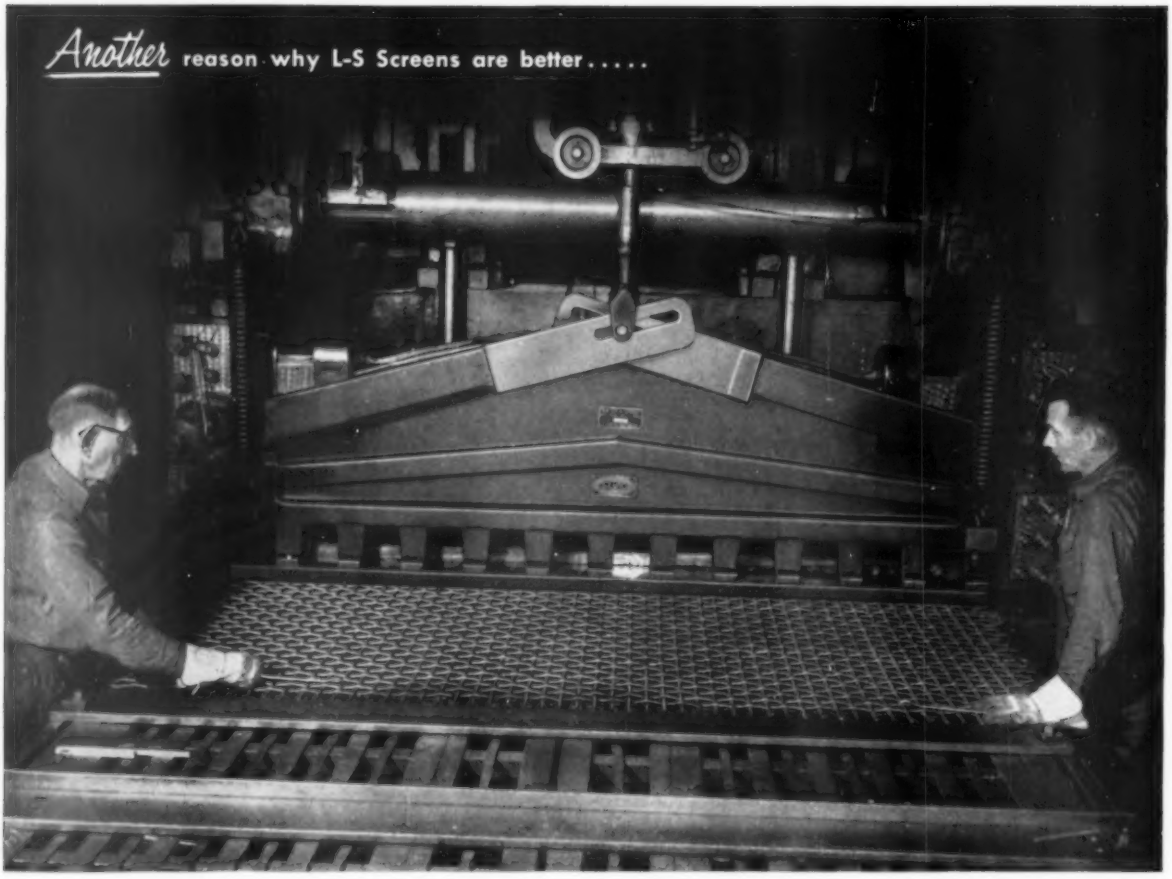
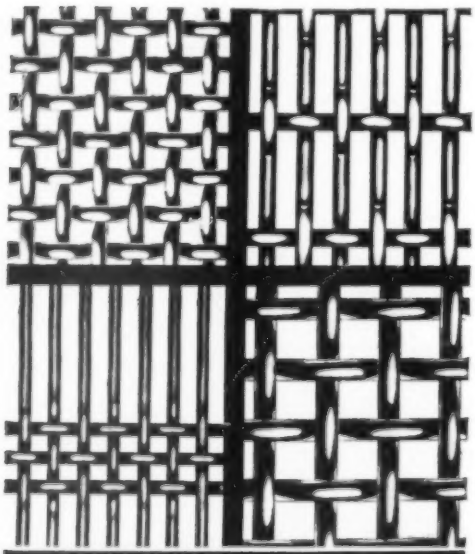
PIT & QUARRY

JUNE
1958



LUDLOW-SAYLOR shears—does not burn—wire ends to insure accurate dimensions and to prevent distortion



Ludlow-Saylor Screens and Wire Cloth can be furnished of stainless, oil-tempered, high-carbon, monel, bronze, copper, brass, or any other wire.

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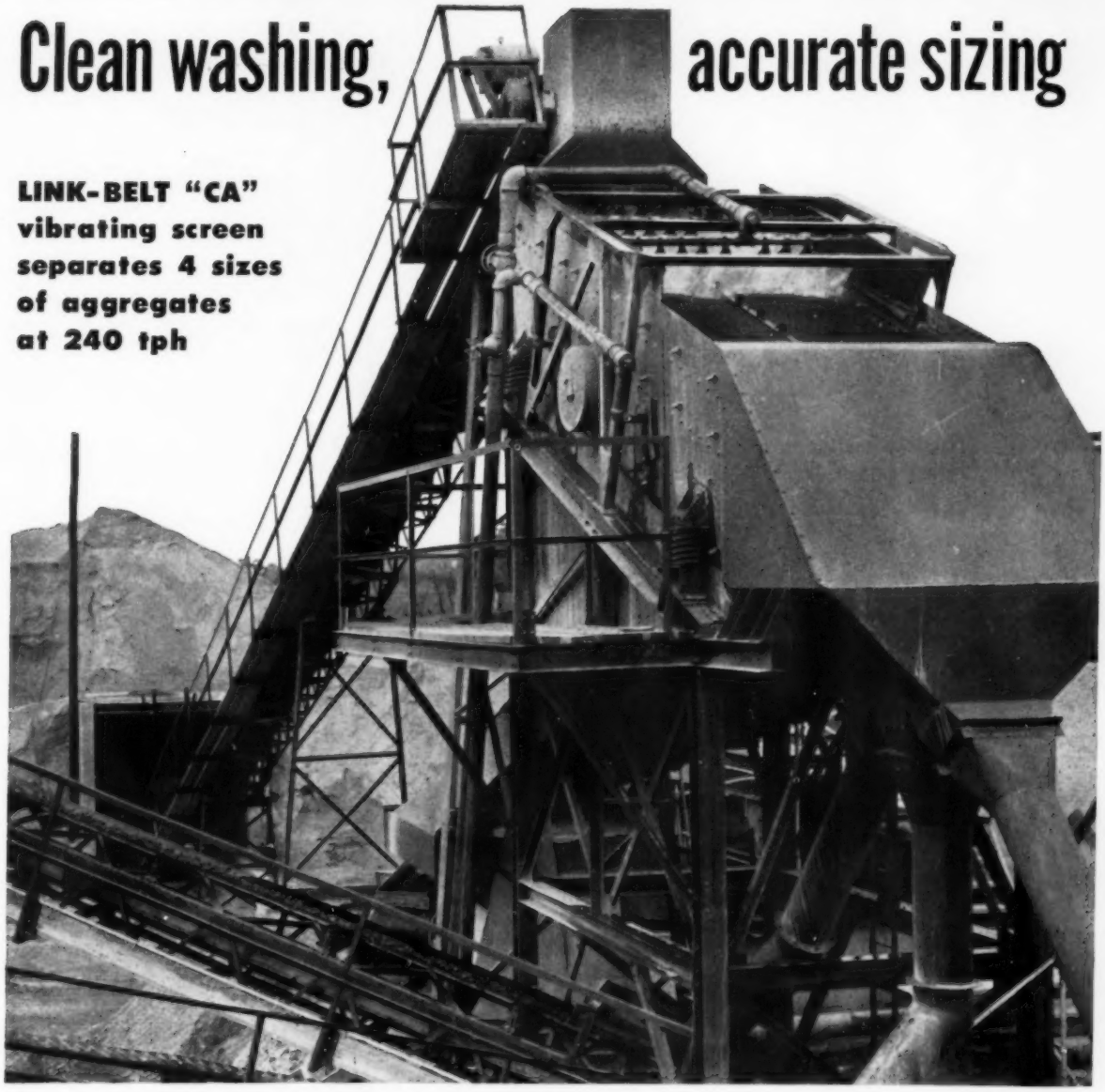
Clean washing, accurate sizing

LINK-BELT "CA" vibrating screen separates 4 sizes of aggregates at 240 tph

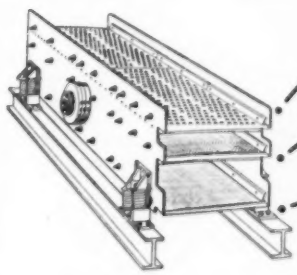


THIS Link-Belt "CA" vibrating screen, equipped with spray nozzles, simultaneously washes and sizes sand and gravel. Key to this rugged unit's high-volume, low-cost performance is its two-bearing vibrator. Mounted in a unitized, extremely rigid deck assembly, it imparts positive, uniform circular motion to every inch of each deck . . . gives each particle maximum sizing opportunity.

Designed for medium- to heavy-duty service, Link-Belt "CA" screens are available with single, double or triple decks. For details, call your nearest Link-Belt office. Or write for Book 2554.

14,773

LINK-BELT TRIPLE DECK "CA" SCREEN, belt conveyors, feeders and Rotoscoop separator at above installation produce three sizes of gravel at a rate of 120 tph. In addition, the screen discharges 120 tph of sand through bottom deck.



TOP DECK — Discharges 40 tph of minus 1-in. to plus ⅞-in. gravel.

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LOWER DECK — Discharges 40 tph of minus ⅝-in. to plus ⅜-in. or plus 3/16 in. gravel.

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pit and quarry

THE BASIC MAGAZINE IN A BASIC INDUSTRY

JUNE 1958 Vol. 50 No. 12

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• • •

Cover Picture

• On the front cover of this issue of PIT AND QUARRY is an aerial view of the new sand and gravel plant of Ontario Custom Crushing Ltd. near Paris, Ont. Although it has a capacity of 200 t.p.h., this plant is simple in design. Scalping and reduction crushing is done at one tower, and final sizing and sand classifying at the other. The three coarse aggregates and concrete sand produced are stockpiled by stacking conveyors.

• • •

Published on the first of each month for producers and manufacturers of Cement, Crushed Stone, Gypsum, Lime, Sand, Gravel, Slag and other nonmetallic minerals.

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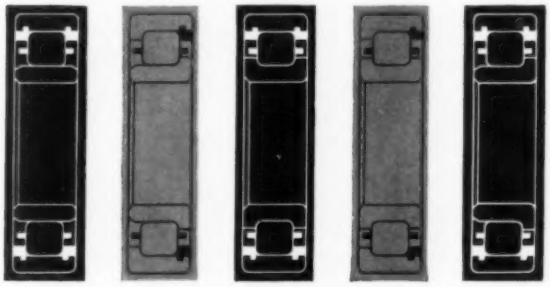

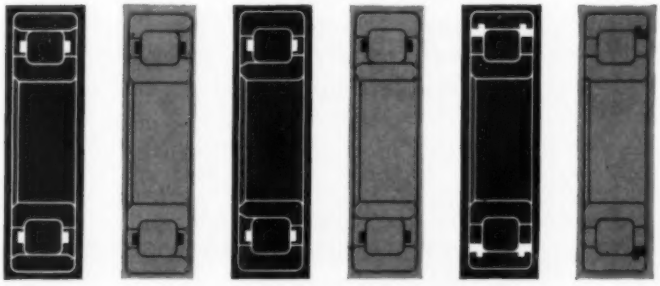

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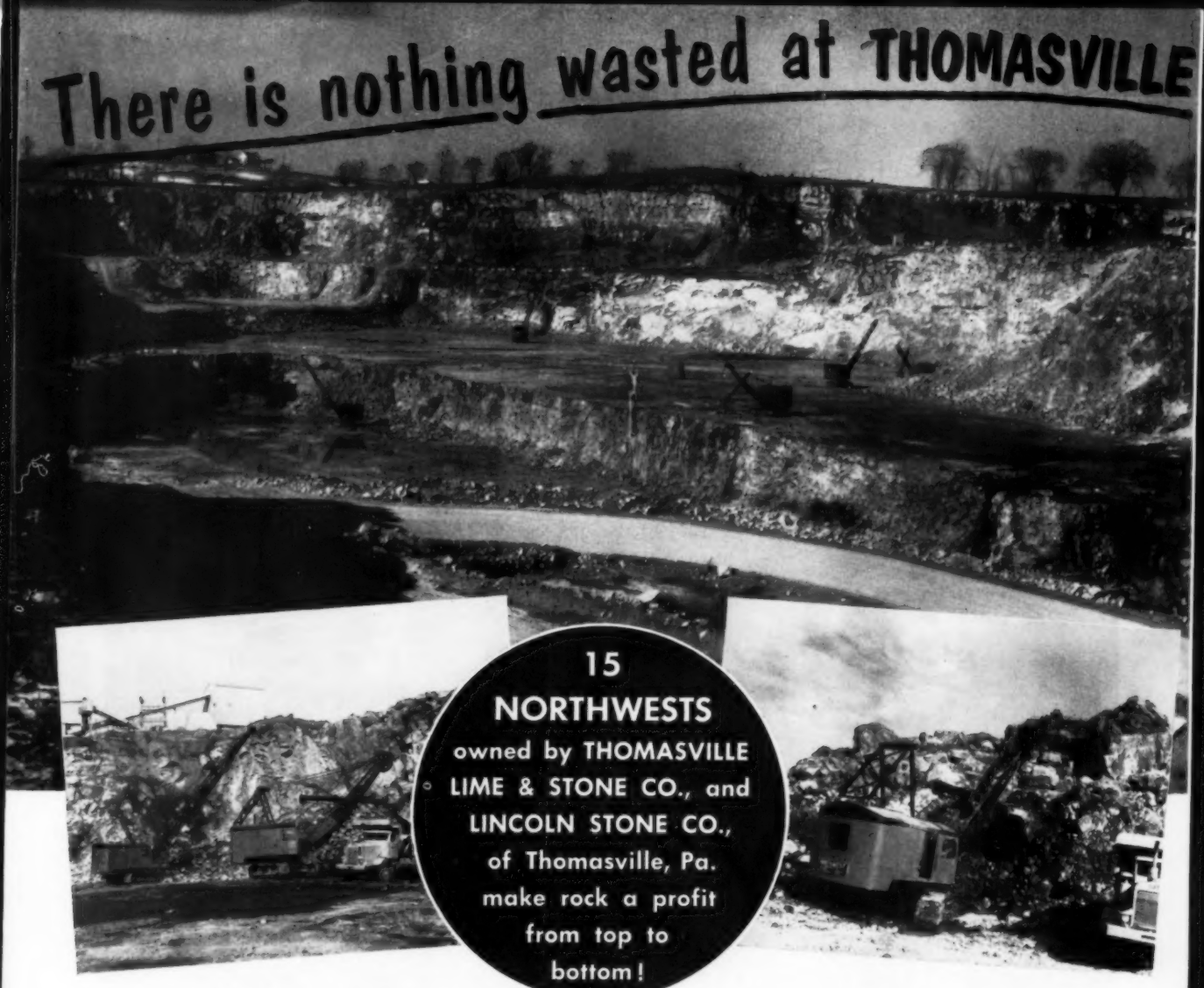

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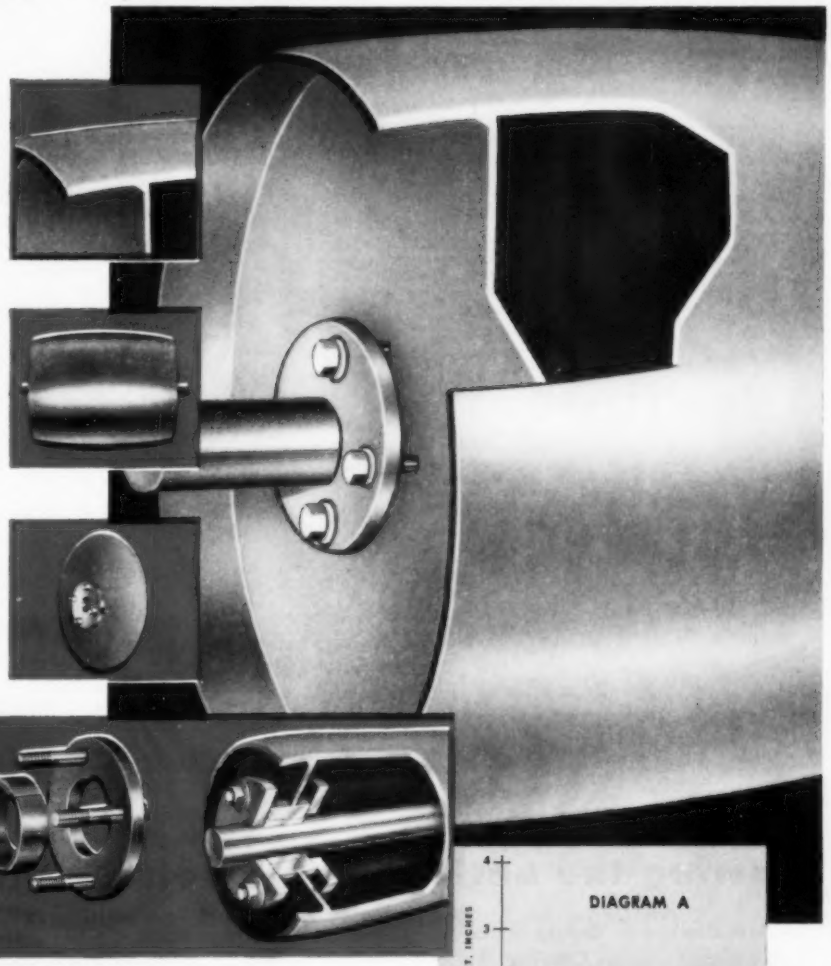

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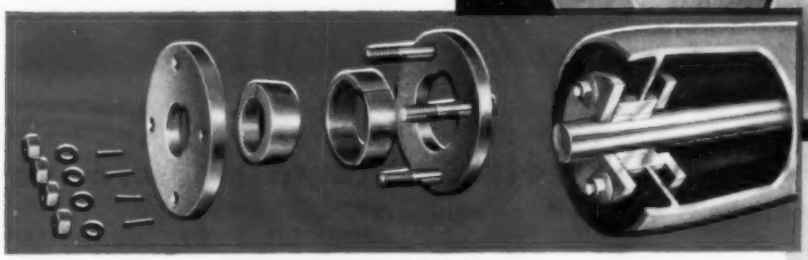

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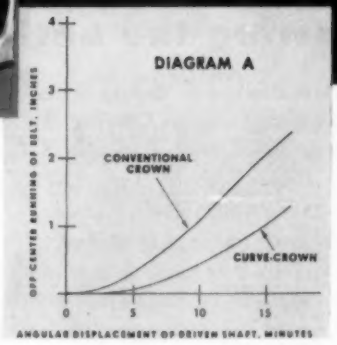

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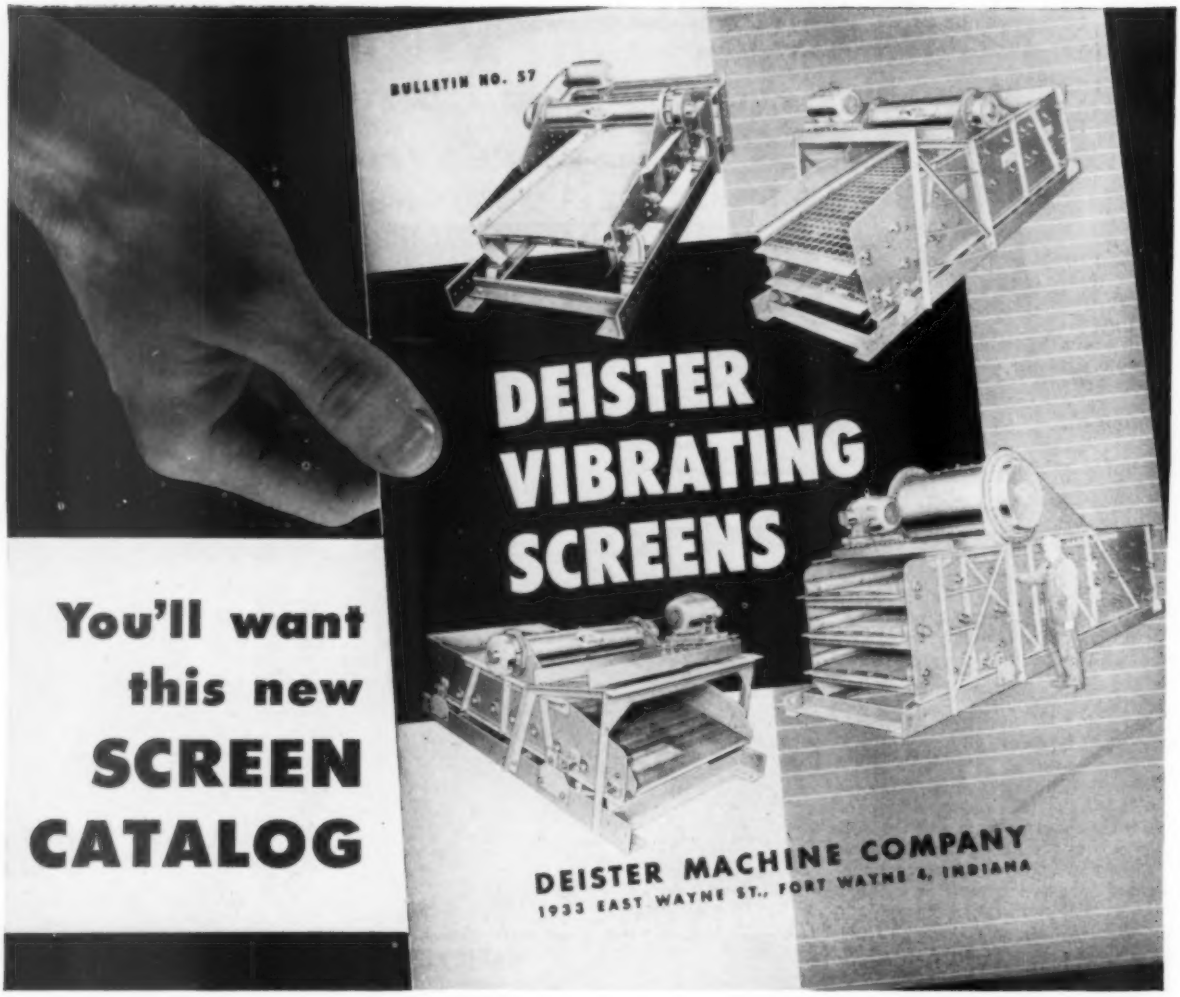

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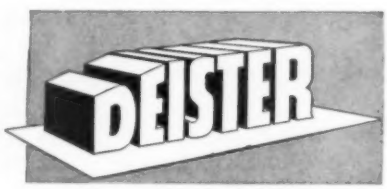

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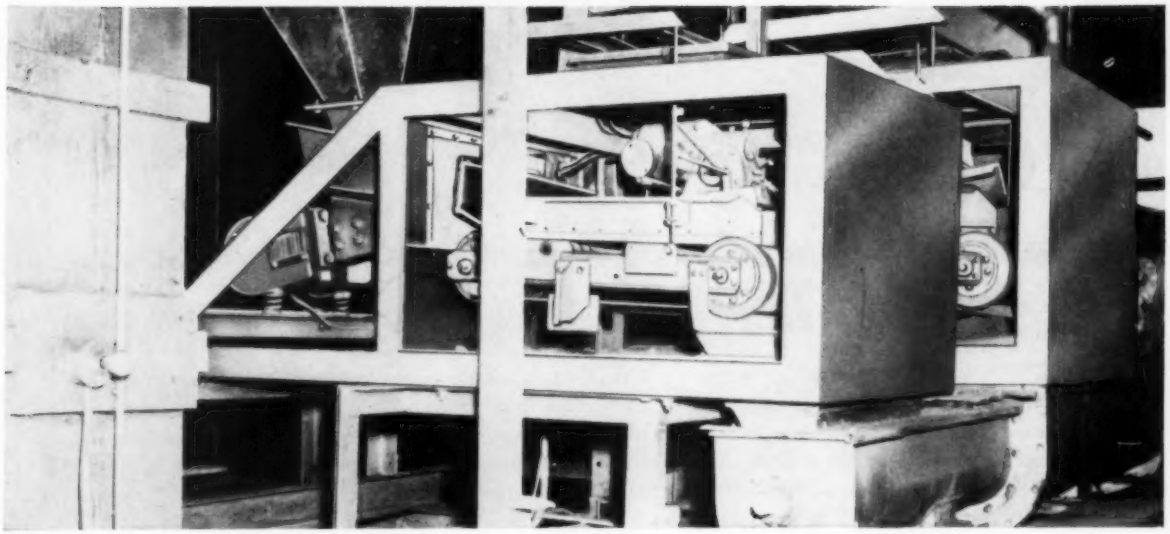

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pit and quarry

JUNE, 1958

Depreciation and the Recession

IT HAS been obvious for some time that obsolete depreciation laws are among the most serious handicaps faced by industry. Manufacturers who would like to replace existing facilities in order to compete in today's constantly changing markets are unable to do so because of these laws. Much of industry is now forced to write off its equipment in 20 years and its buildings in 40 to 60 years, in spite of the fact that the rapid progress in our technology may make a machine or a process economically obsolete in as little as three or five years.

Our thinking on depreciation must keep up with our technology. Production facilities must be regarded as expendable tools which are useful only as long as they make a product at the lowest possible cost when all factors are considered. When existing equipment can be replaced with more efficient facilities, with resulting lower unit production costs, the original equipment is economically obsolete, even if it has many years of physical life remaining.

THIS subject has been widely discussed, in these pages and elsewhere, and has been on the agenda of many industry conventions, including the recent aggregates meetings in Chicago. These have, however, been independent, unco-ordinated actions, with not enough concentrated pressure to overcome the inertia that is blocking depreciation reform. It remained for the magazine *Steel* to initiate a concerted drive for short- and long-term depreciation reform which calls for the co-operation of every industry, association, and publication, and also of every manufacturer. We join wholeheartedly in this effort to convince manufacturers that by bringing pressure on all congressmen and appropriate government officials, this most serious deterrent to recovery from the recession can be overcome.

This program consists of two steps:

1. For the short term, allow any equipment, building, or land acquired from January 1, 1958, until June 30, 1959, to be amortized for tax purposes in five years—if the owner elects to do so.

2. For the long pull, set up an industry government commission to modernize the depreciation setup on a permanent basis. We must also replace the government's rigid concepts of useful lives for facilities, as embodied in the Internal Revenue Service's *Bulletin F*, with a more modern and realistic system.

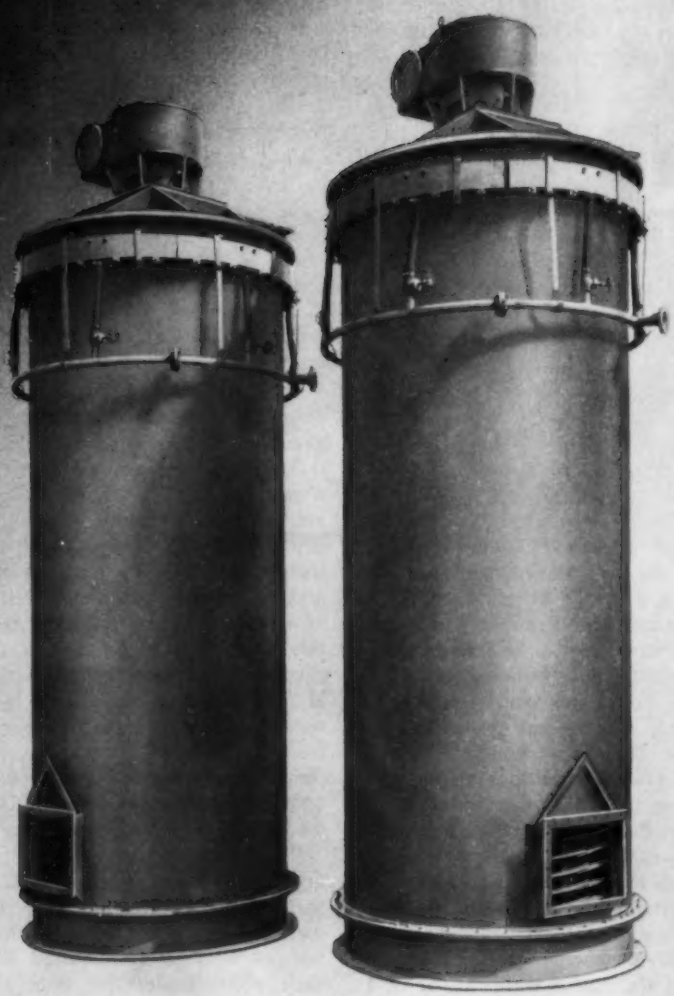
THIS bold yet simple program is designed to correct the recession and at the same time check inflation. It is based on the fact that the quickest and surest way to correct the recession is to stimulate spending for capital goods. This means spending for re-equipment and, where needed, for new plants. The most direct way to encourage such spending is to free industry from the present strait-jacket depreciation laws.

Re-equipment boosts productivity and lowers costs, and this trend would strike at the core of inflation.

In order to get Congress to accept the idea of depreciation on a replacement basis, industry in general must first accept it. This is the time to make a concerted drive to get solidly behind this program and to sell the idea to Congress.

Walter E. Trautfer

SMIDTH
cement coolers



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Washington News Letter

By S. HERBERT UNTERBERGER

The Recession and Politics

BY this time the economic recession has affected practically all segments of our population. This makes it a perfect vehicle for the political maneuvering which is so much a part of the Washington scene.

The tactic is a model of simplicity. It operates like this. The Democrats, who constitute the majority of both houses of Congress, arrange to pass an extreme piece of legislation which, ostensibly, is designed to alleviate the recession-engendered hardship of a particular one of these potent groups. It is drafted in a manner which clearly violates a stated Eisenhower position, thereby almost certainly requiring a veto. When the expected veto occurs, the President is blamed for being opposed to helping large groups of people in need. The following examples show how this strategy is being put into practice.

The Democrats voted to freeze farm price supports, knowing full well that this was directly opposed to the President's frequently stated policy of flexible price supports. Although rigid support for the prices of certain farm products has long been a part of the Democrats' basic legislative scheme, they have now added the currently appealing note of calling it an anti-recession measure.

That the President would veto this measure was almost a foregone conclusion. As a matter of fact, the Democrats counted on this. This is exactly what the President did, and now this action is already being used, and will continue to be used, at least until the forthcoming election, to show that the President is opposed to helping the farmers out of any economic difficulties which the recession may have caused.

Along the same lines, the Democrats passed a bill authorizing tremendous expenditures for public works. This is the River and Harbor Authorization, which has frequently been referred to as "pork-barrel" legislation. Here, again, the legislation was labeled as an anti-recession measure. It was publicized as legislation which would provide a large number of jobs, both in major cities and in rural areas, for people who were in need of work.

Of course, such a bill, if enacted, would have further unbalanced an already seriously unbalanced Federal Budget. Objective analysis would probably show that it involved a high degree of financial irresponsibility. Similiar measures had been vetoed by the President, and therefore it was no surprise to anyone when the President vetoed this one. Nevertheless, it is virtually certain that much will be heard about this action, particularly in the speeches of local Democrats running for office in the localities in which the bill would have authorized the construction of roads, bridges, dams, etc.

The same political considerations appear to be back of the maneuvers with respect to extending unemployment compensation to unemployed persons who have exhausted all of their rights under the state laws. Here, the Democrats appear, originally, to have missed the boat completely. This was an Eisenhower proposal which the Democrats either had not thought of at all or had not regarded as sufficiently worth while to deserve their attention.

Once the Administration made the proposals, however, the Democrats not only jumped on the band wagon, but succeeded in displacing the driver! When the Eisenhower proposal was finally drafted, it provided for action authorizing federal loans to states for extra periods of compensation which were repayable by the state at some later time when their unemployment compensation system showed a surplus.

The House Ways and Means Committee, which is under Democratic domination, took the basic proposal and turned it around completely. Its proposition would involve outright gifts to the states, which might not be too serious; but it would also provide benefits, not only for those who were eligible for unemployment compensation under the rules established in the laws of each of the states, but also for numbers of other persons who would not otherwise be eligible, at all.

Thus, the result would be to turn the unemployment compensation system into a giant system for unemployment *relief*. It would not be very different from the British "dole." Such action would involve a fundamental re-direction of the whole unemployment compensation program. Ever since the inception of that program it has been regarded as a setup which would provide benefits, as a matter of right, to persons who had previously been employed, the amount of benefits being related to their previous earning level. This was kept separate from a program of unemployment relief, under which persons were not entitled to benefits as a matter of right, but rather on the basis of a means test. The amount of benefits would depend on their needs.

The proposed measure has a long way to go before it reaches the White House; but if it should manage to get there, its veto is also virtually certain. It is equally certain that such a veto would be used in the political arena as evidence that the President and his party are

(*Continued on page* 64)

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Telescopic arms on the Work Bull 1001 permit low pivot points but mammoth reach.

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LOW PACKAGE PRICE The Work Bull 1001 is priced less than anything in its class. In fact, chances are the complete basic unit and all attachments will cost you less than you normally pay for one single-purpose machine.

OTHER POWER MATCHED MASSEY-FERGUSON EQUIPMENT include the Work Bull 202 (40 h. p.) with integrated Davis Loader-Backhoe, Work Bull 303 (54.5 h. p.) with 500 Loader and Backhoe, Work Bull Fork Lift, plus a multitude of integrated attachments for each.

For information on the complete Massey-Ferguson line ask for Brochure G-4. For specific information on the Work Bull 1001 ask for Brochure W-1. ***Write Massey-Ferguson Industrial Division, 1009 South West Street, Wichita 13N, Kansas.***

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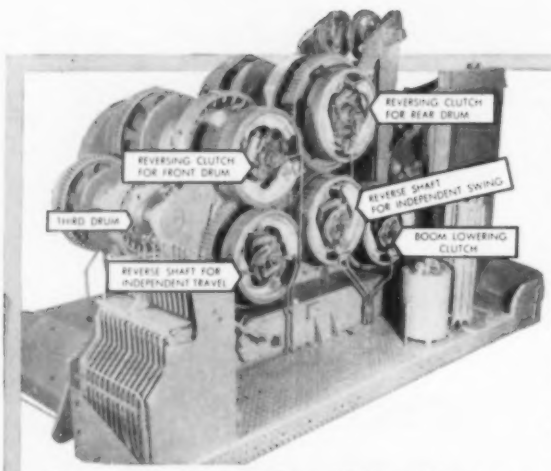
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Each of these functions, as keyed above, operates with its own power train and therefore independently of all other operations. This design permits more versatility . . . . assures longer life.

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• Hydraulic power steering	x				
• Independent rapid boomhoist	x	x	x		x
• Fully interchangeable, self-adjusting clutches	x				
• Two-speed travel in either direction through gear reduction	x	x			
OPTIONAL FEATURES					
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• Reversing clutches for both main drums	x				
• Boom lowering clutch	x			x	x
• Third drum without restricting any other function	x			x	
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• Torque converters	x		x		x

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on one shovel-crane

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A big promise—the *multiwall of TOMORROW!* But rigorous tests, both in laboratory and actual use, show that Bemis Multiwalls made with the revolutionary new extensible kraft offer the biggest multiwall development in years.

Testing still goes on. We can document more and more of the qualities of Bemis extensible bags . . . and we are learning more about which industries they will serve beneficially.

(Normally, an announcement of this kind would be held up until all tests are completed, but this development is so important, and final reports are so near, that you should be alerted.)

We can say positively, though . . . *the adaptability of Bemis Extensible Multiwalls for the cement industry has been definitely proved. They will give you superior service, probably at a cost no greater than your present bag cost, maybe at a saving.*

You will certainly want to get the *complete* story about Extensible Multiwalls from your Bemis Man. And you will want to order a trial quantity—possibly 5,000 bags as a starter—in an early shipment of Bemis Multiwalls. Supplies will be somewhat limited until full production of the new paper develops. Meanwhile, all Bemis customers will, of course, get an "even shake."

You will be well advised, though, to get acquainted with Bemis Extensible Multiwalls as soon as possible . . . to learn how they fit into *your* operation.

WHAT IS EXTENSIBLE KRAFT PAPER?

It is sturdy kraft that is given a special mechanical treatment, during manufacture, to provide special qualities that are particularly desirable in Multiwall bags. This paper is made by West Virginia Pulp and Paper Company under the trade name "Clupak." "Extensible" means that it has a definite, though almost imperceptible, "stretch" *in both directions.* The "stretch" provides the qualities that make for better multiwall bags. (Note—This is *not* a *creped* paper.)

WHAT ARE THESE SPECIAL QUALITIES?

1. Because of the "stretch," it is stronger . . . more resistant to shock and breakage. Consequently, a lighter construction will provide an equally strong bag. (Paper weight can, in some cases, be reduced 20% or more without reducing strength.)

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3. Easier on the workman's hands.

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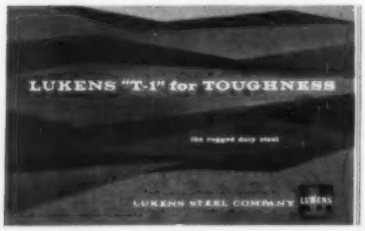

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News of the Industry

Name Romig Chief Chemist Of California Portland To Succeed W. C. Hanna

John R. Romig, who has been associated with the California Portland Cement Company at Colton, Calif., for the last year, has been appointed chief chemist and chemical engineer for the company, succeeding W. C. Hanna, vice-president in charge of technical development, who will continue as vice-president and technical adviser.

Mr. Romig had been employed by the Missouri Portland Company as research chemist for several years before he joined the staff of California Portland Cement. In his new post he will be responsible for operations of the laboratory at Colton and also those at the company's plants at Mojave, Calif., and Rillito, Ariz.

Mr. Hanna, who has been associated with California Portland for almost 55 years, has worked with Mr. Romig for the last year.

Portland Cement Association Opens New Regional Office

Establishment of a new regional office in Denver, Colo., has been announced by G. Donald Kennedy, president of the Portland Cement Association. The Rocky Mountain Regional Office will enable P.C.A. to improve its services to cement users in Colorado, Wyoming, Montana, Utah, and New Mexico.

Edward W. Thorson, in charge of the P.C.A. district office in Denver since 1946, was appointed to the dual post of regional manager-district engineer, effective April 1, 1958. In this position he will supervise district offices in Salt Lake City, Helena, and Denver.

Mr. Thorson has been with the Portland Cement Association since 1934. He served as field engineer in Iowa and Minnesota before being appointed district engineer of the Denver office in 1946. Before joining P.C.A. he held positions in the Iowa State Highway Commission, the Engineering Experiment Station, and the Conservation Service.

Edward W. Thorson

Ideal Cement Company Building $1,350,000 Plant At Sacramento, Calif.

The Ideal Cement Company, Denver, Colo., plans to make extensive use of the Sacramento (Calif.) deep-water channel when it is completed and is building a $1,350,000 bulk cement storage and packaging plant for that purpose.

Now under construction on the west bank of the Sacramento River are 6 storage silos, each 135 ft. high and having a total capacity of 24,000 tons.

Cement will be moved in bulk by barge from Redwood City, Calif., to Sacramento, where it will be unloaded for distribution throughout northern California.

The temporary facilities constructed a short time ago on the river will be abandoned when the new plant is completed.

Coming Events

June 9-10, 1957—Chicago. Mid-year directors' meetings, National Agricultural Limestone Institute Inc. and National Crushed Limestone Institute. Sheraton-Blackstone Hotel.

June 22-27, 1958—Boston. 61st annual meeting and exhibit, American Society for Testing Materials. Hotel Statler.

June 23-27, 1958—Portland, Oreg. Convention, American Society of Civil Engineers.

July 20-21, 1958—Denver. Mid-year meeting, Expanded Clay and Shale Association. Cosmopolitan Hotel.

July 24-25, 1958—Hot Springs, Va. Directors meeting, National Crushed Stone Association. The Homestead.

September 22-25, 1958 — San Francisco. American Mining Congress, 1958 Mining Show; Metal Mining—Industrial Minerals. Civic Center Exhibit Hall and Civic Auditorium.

September 30-October 1-2, 1958—Las Vegas, Nev. Semi-annual meetings, boards of directors of National Sand and Gravel Association and National Ready Mixed Concrete Association. Hotel Tropicana.

October 21-22, 1958—Washington, D.C. 4th annual meeting, National Slag Association. Mayflower Hotel.

Construction Contracts Off 12% in March, 1958—Jan.-Mar. Total Also Dips

Contracts for future construction in the United States in March totaled $2,721,228,000, a decrease of 12 percent compared to March 1957, according to F. W. Dodge Corporation.

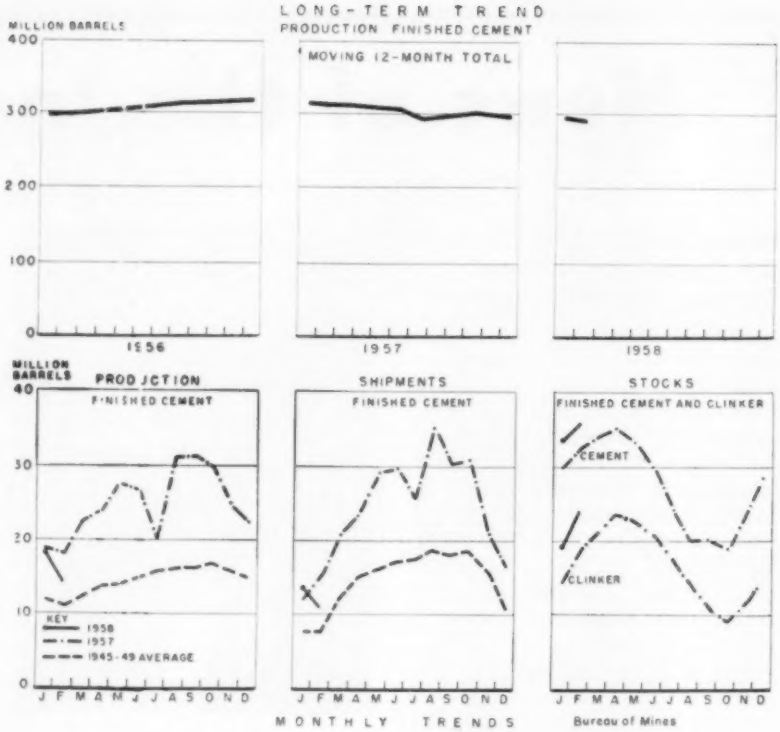
Contracts for non-residential buildings in March amounted to $967,102,000, down 11 percent from a year ago. Within this category, decreases were registered again in contracts for commercial and manufacturing buildings, 18 and 38 percent, respectively. Educational and science buildings were down 2 percent. However, contracts for hospitals showed a 17 percent increase.

In the residential building category, contracts for March totaled $1,070,556,000, down 3 percent compared to March, 1957. Large residential buildings contracts showed a gain of 29 percent in dollar volume, but this was more than offset by a decrease of 8 percent in contracts for one- and two-family houses.

The total number of dwelling units reported in March was 85,218, an increase of 1 percent above March a year ago. The number of one-family dwelling units decreased 9 percent in March; however, the number of units of apartments and two-family houses showed substantial increases.

Dollar volume of contracts in March in the heavy engineering category totaled $683,570,000, down 22 percent compared to the like 1957 month. Public works and utilities both registered decreases.

The cumulative total of contracts for the first quarter of 1958 amounted to $6,721,767,000, down 11 percent from the like 1957 period. Cumulative total of contracts in the major construction categories showed: non-residential at $2,466,106,000, down 13 percent; residential at $2,567,698,000, down 8 percent; and heavy engineering at $1,687,963,000 down 12 percent.



SUMMARY—Production of finished portland cement in February, 1958, as reported to the U. S. Bureau of Mines, totaled 14,144,000 bbl., a decrease of 21 percent from February, 1957. Mill shipments in February, 1958, totaled 10,944,000 bbl., a decrease of 28 percent compared with February, 1957. Stocks of 36,392,000 bbl. of finished portland cement on hand February 28, 1958, were 12 percent more than those on hand February 28, 1957. Clinker production during February, 1958, totaled 19,538,000 bbl., a decrease of 12 percent from the February, 1957, figure.

PRODUCTION—One hundred and forty-nine (149) plants (excluding 15 inactive plants) in 37 states and Puerto Rico reported a production of 14,144,000 bbl. of finished portland cement during February, 1958, compared with 17,827,000 bbl. produced in February, 1957.

Clinker production during the month of February, 1958, was 19,538,000 bbl. compared with 22,279,000 bbl. during the same month last year.

Production of high-early-strength portland cement in February, 1958, totaled 842,000 bbl., a decrease of 39 percent from the February, 1957, figure.

Prepared masonry cement production in February, 1958, of 545,000 bbl. decreased 41 percent from the February, 1957, production.

SHIPMENTS—Mill shipments of finished portland cement for February, 1958, totaled 10,944,000 bbl. compared to 15,106,000 bbl. in February, 1957.

In February, 1958, shipments were higher in three (3) districts and lower in twenty (20) districts than in February, 1957. The greatest increase was in the Oregon-Washington district. The greatest decreases were in the eastern Pennsylvania-Maryland, New York-Maine, and Ohio districts.

Mill shipments of high-early-strength portland cement in February, 1958, totaled 576,000 bbl., a decrease of 31 percent from the 829,000 bbl. shipped in February, 1957.

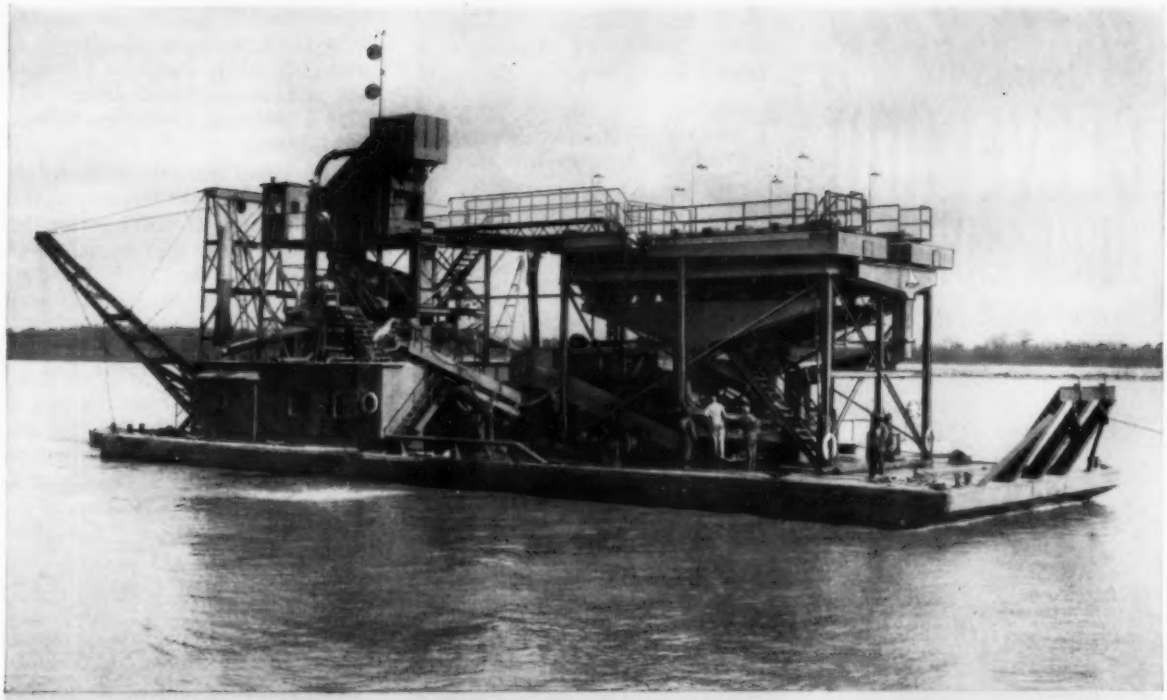
Mill shipments of prepared masonry cement in February, 1958, totaled 457,000 bbl., a decrease of 39 percent from the 752,000 bbl. shipped in February, 1957. Nearly half of these shipments were from mills in the northern states east of the Mississippi River. Prepared masonry cements are shown in 376-lb. barrels, although they are sold in barrels of varying weights.

STOCKS—Mill stocks of 36,392,000 bbl. of finished portland cement were on hand February 28, 1958, an increase of 12 percent over the 32,382,000 bbl. on hand February 28, 1957. Stocks of clinker increased 31 percent from 18,625,000 bbl. on February 28, 1957, to 24,327,000 bbl. on hand on February 28, 1958.

FIRST TWO MONTHS—For the January-February period this year, the volume of production of finished cement amounted to 32,632,000 bbl. compared with 37,147,000 bbl. in the same period of 1956. Total shipments for the first two months of 1958 are reported as 24,562,000 bbl.: in 1957 (January-February period) the total shipments were 26,908,000 bbl.

Maule Industries, Inc., Miami, Fla., reported sales of $26,221,489 and net earnings of $801,945, or $1.08 a share for 1957. The figures compare with sales of $22,935,785 and earnings of $1,142,061 or $1.53 a share in 1956. Included in earnings are non-recurring profits from the sale of securities in 1957 and land in 1956.

The Colonial Sand and Stone Company, Inc., New York, N. Y., reported a net income of $1,337,403, or $1.49 per share for 1957, compared with $1,350,400, or $1.51 a share in 1956. However, 1957 sales were $2,319,646 over 1956.



DREDGE MOUNTED EAGLE SAND PROCESSING SECTION SAVES 3 WAYS

For Federal Materials Co., Paducah, Kentucky

The Eagle Sand Processing Section installed on the Ohio river dredge of Federal Materials Co., consists of a double Water Scalping-Classifying Tank, two Double Screw Washer-Classifier-Dehydrators and two Single Screw Coarse Material Washer-Dewaterers. This floating installation saves three ways for them:

- Pay loads on transfer barges are increased by 10% to 15% since materials are dewatered before loading into barges.
- Greater retention of fine mesh material is provided.
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Fill out coupon, affix to post card or your letterhead and mail today!

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A dredge mounted Eagle Sand Processing Section has been turning out specification material for five years. Much of Pine Bluff's material is used at their ready-mix concrete plant. A number of operators are using dredge mounted Eagle Equipment successfully.

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Enter 26 on card, page 97

U. S. Building Costs Rise 2 Percent in 12 Months—Materials, Wages Steady

Building construction costs, notwithstanding market weaknesses noted throughout the United States, have managed to squeak up another two percent for the 12 months ending in March. All of this came about in the first half of the period. Since then there has been enough price deterioration in retail quotations to builders for items of building materials, equipment, appliances, and accessories, to overcompensate slightly for the impact of higher wage rates to building trades craftsmen.

These facts were published by the Dow Real Estate Valuation Calculator, a semi-annual F. W. Dodge Corporation service.

Labor and materials costs for six months ending in March, 1958, were generally reported to have remained essentially the same, but labor showed greater strength.

The price tag on construction is 149 percent higher than in prewar 1941. (The average level of cost was then approximately equal to the average for the years 1926-1929.) Building cost is today roughly two and one/half times what it was in 1941. Saying it another way, it takes $2.50 today to buy what $1.00 bought 17 years ago. The $8,000 house of 1941, exclusive of land and charges other than labor and materials for construction, would come today with a tag for $20,000. Thus the current purchasing power of the 1941 building dollar is 40 cents.

These observations do not hold uniformly true in all of 150 cities tested. In some places material and wages are substantially lower than in others.

N.A.L.I. and N.C.L.I. Boards Meet June 9-10 in Chicago

The midyear directors' meetings of the National Agricultural Limestone Institute, Inc., and the National Crushed Limestone Institute are scheduled to be held on June 9 and 10 at the Sheraton-Blackstone Hotel in Chicago.

After the joint luncheon on the first day both organizations will hold committee meetings. A buffet dinner will be served that evening, after which the N.C.L.I. executive committee and committee chairmen will meet. N.A.L.I. executive committee and committee chairmen will hold a breakfast session the following morning.

The board meeting of N.A.L.I. has been set for the morning of the 10th, and that of N.C.L.I. for the afternoon, after the second joint luncheon.

Thacher Resigns Top Post With Carbon Limestone Co.

Frank B. Thacher has resigned as chairman of the board and chief executive officer of Carbon Limestone Company, Lowellville, Ohio, and affiliated companies — Carbon Concrete Brick Company, Lay - Rite Concrete Products Company, and Carbon Structural Concrete Company.

George H. Donaldson, president of Carbon Limestone, was named chief executive officer to succeed Mr. Thacher at the parent company; he also becomes president and chief executive officer of the subsidiaries. He has been with the firm since 1950 and became president in 1955.

Mr. Thacher was named honorary chairman of the board of Carbon Limestone and its affiliates. He joined the company in 1948 as president and was named chairman of the board in 1955.

Atlas Sand and Gravel, Inc., has begun operations in Minot, N. D., with Alvin Braun as manager. The firm, located adjacent to Atlas Ready-Mix, Inc., also managed by Mr. Braun, will specialize in processing sand and crushed rock.

Calaveras Cement Company, San Francisco, Calif., has dropped its remaining options on land which had been considered as a possible plant site in the Shasta Lake area in northern California. Calaveras owns 550 acres containing rich limestone deposits near the lake.

Alpha Portland Cement Company, Easton, Pa., announced the awarding of a $10,000 masonry cement research grant to Layfayette College. In 1957, the college received $5,000 from the firm for study in this field.

Alpha Portland Cement Announces Consolidation Of Purchasing Divisions

Alpha Portland Cement Company, Easton Pa., has consolidated its western and eastern purchasing departments, and has relocated the purchasing office to the Alpha general office, Alpha Building, Easton, Pa. All purchasing, previously handled from the western office at 308 West Washington Street, Chicago, Ill., will now be conducted from the Easton office.

Ray L. Hamilton, former western purchasing agent, has been appointed director of purchases. James I. Maguire, former eastern purchasing agent, is purchasing agent.

Mr. Hamilton has been with the Alpha company since 1921, and has served as western purchasing agent since 1939.

Mr. Maguire, who joined Alpha's eastern purchasing department in 1949, has headed that department since 1952.

Medusa Portland Cement Co. Opens $12,000,000 Ohio Plant

Medusa Portland Cement Company has begun operations at its $12,000,000 plant at Wampum, Ohio, and started construction of an improved highway leading to the new facility.

The plant, designed by the Osborn Engineering Company of Cleveland, Ohio, has been under construction since July, 1956. Production capacity at the facility will be 10,000,000 sacks of cement a year. The crushing unit handles 450 tons of raw limestone every hour.

Contract for the construction of the highway has been let to the Mashuda Construction Company. The concrete roadway is scheduled for completion next year.

First quarter sales of United States Gypsum Company, Chicago, Ill., rose to $56,487,164 from $56,245,426 of the year earlier. Net income of the company and subsidiaries, however, declined 7.2 percent to $7,631,623, or 94 cents a share, from $8,224,610, or $1.01 a share, earned in the corresponding period a year ago.

NOW, A MANGANESE STEEL ELECTRODE
with High Build-up, Low-spatter, Easy Slag Removal

A special new Amsco rod, Nicro-Mang, for both joining and buildup of manganese steel

Out of Amsco® metallurgical research has come a new welding rod that gives you high weld strength without cracking on Austenitic manganese steel. A rod that lets you lay down a bead without slag popping, and slag removal is easy.

To lick the cracking problem, it took a special alloy of chromium and nickel, plus a unique coating for Nicro-Mang.

Write for Nicro-Mang bulletin, or see your local Amsco distributor.

Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division — Chicago Heights, Illinois

Enter 27 on card, page 97

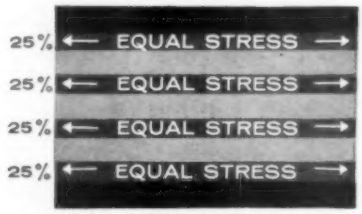
BBC – Balanced Belt Construction — is BOSTON'S exclusive manufacturing method that equalizes ply stress so that each ply pulls its full share of the load . . . eliminates lazy plies.

This is the result of two advanced BOSTON processes; *Electro-Tensile Control*, which controls ply tension — and *Rotocure*, the only continuous method of vulcanization which assures uniformity throughout the belt.

New DULON Covers add further uniformity and durability to BOSTON belts. With DULON, the consistency of belt performance has been greatly increased. DULON has proven, on the job, that it is amazingly resistant to abrasion, gouging and tearing.

Let the BOSTON man present the dramatic proof about Balanced Belt Construction with DULON Covers — as it applies to your specific belt problems.

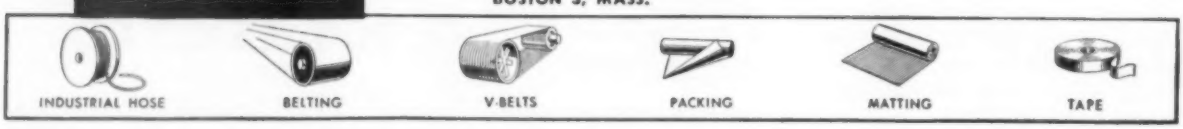
CONVENTIONAL BELT CONSTRUCTION



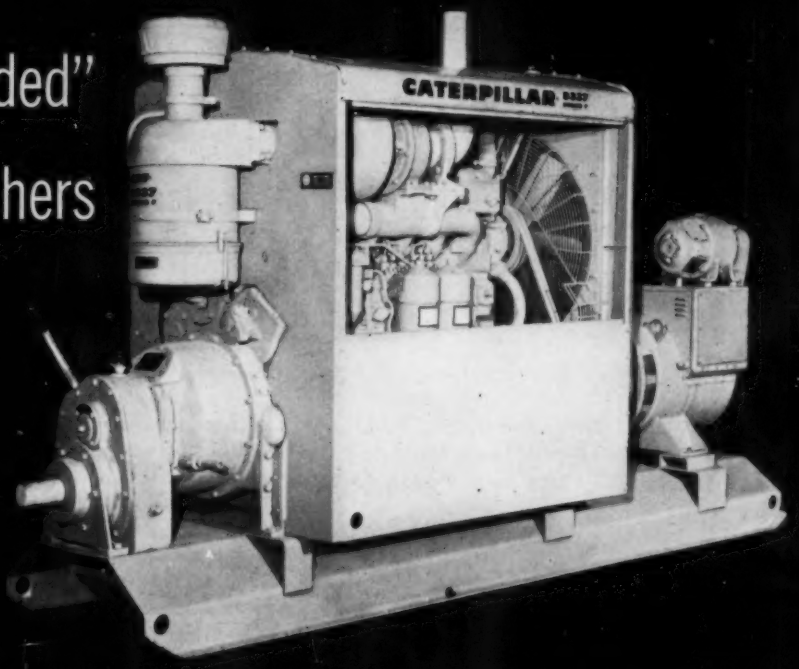
BBC-BALANCED BELT CONSTRUCTION

BOSTON

BOSTON WOVEN HOSE & RUBBER COMPANY
DIV. OF AMERICAN BILTRITE RUBBER CO., INC.
BOSTON 3, MASS.



At last! A "two-handed" power unit for crushers with transmission and generator at opposite ends



Now you can get a modern, heavy-duty Caterpillar power unit—the D337 (Series F)—with transmission at one end and a standard size generator at the other, providing both mechanical and electrical power to your crusher.

In this new Cat power unit, the transmission drives jaw and drum crushers through simple, direct connections. The electrical power from the generator permits better control of screens and conveyor belts giving an even flow of material for maximum plant efficiency.

This Cat Electrical and Mechanical Drive Unit is readily portable—can be easily mounted on a truck—and was designed for 150 to 200 ton plants. Its exclusive design affords easy maintenance because either generator or transmission may be serviced separately.

Ample engine horsepower is available in the D337 (Series F) to handle electrical requirements through a 60 KW generator and all mechanical requirements through the Cotta transmission.

Why not call your Cat Dealer today? He will be happy to discuss your power needs—follow through on the installation and stand behind your Cat equipment with the best parts and service facilities in the heavy construction equipment field.

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U.S.A. Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

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1. Top Production
2. Slashes Downtime
3. Increases Plant Efficiency
4. Eliminates Conveyor and Screen Clutches
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BY CATERPILLAR

Engine Division
CATERPILLAR TRACTOR CO., Peoria, Illinois, U. S. A. Dept. PQ6

I would like more information about the new Cat Electrical and Mechanical Drive Unit for powering and repowering crusher plants.

☐ I would like detailed information or a dealer call since I may be in the market. I understand that I am under no obligation.

☐ I am interested in learning more in general about these units.

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Company_____

Address_____

City_____ Zone____ State_____

N. O. Wagner

J. D. Bell

E. F. Brownstead

R. L. Rhodes

Wagner New Senior V.-P.— 4 Other Executives Named To Alpha Portland Posts

Norman O. Wagner has been elected senior vice-president of Alpha Portland Cement Company, Easton, Pa., and Richard L. Rhodes, Joseph D. Bell and Ernest F. Brownstead have been named vice-presidents.

Mr. Wagner, formerly vice-president of sales, joined Alpha in 1953 as assistant vice-president. He became vice-president of sales in 1955 and was named to the Alpha board of directors the following year.

Mr. Rhodes, who has been with Alpha since 1928, has served in various capacities, and became general sales manager in 1956.

Mr. Bell also joined the company in 1928, when the company purchased the Phoenix Portland Cement Company. He has been a district sales manager in New York since 1952.

Mr. Brownstead began his association with Alpha in 1934. He progressed through several positions before becoming general manager of operations in 1956.

Portland A.S.C.E. Meeting Scheduled for June 23-27

Topics of considerable public interest will be covered in addresses given at the convention of the American Society of Civil Engineers in Portland, Oreg., from June 23 to 27.

In addition, several field trips are being planned, including a trip to the R. H. Baldock Freeway, sponsored by the Hydraulics Division; a tour of the Bonneville Hydraulics Laboratory, sponsored by the Hydraulics Division; a visit to the City of Salem and the American Pipe and Construction Company's pipe plant, sponsored by the Pipeline Division; and a field trip to the Dalles Dam, sponsored by the Corps of Engineers, Portland District.

Several panel discussions will supplement the regular presentations. One of them, a *Symposium on Spacing and Location of Interchanges on Freeways in Urban and Suburban Areas*, is attracting considerable attention.

Speakers will include Governor Robert D. Holmes of Oregon, and F. C. Lindvall, president of the American Society of Engineering Education.

The Hydraulics Division is scheduled for five sessions, plus a joint meeting with the Waterways and Harbors Division. Five joint sessions are planned by the Power, Soil Mechanics and Foundations, and Construction divisions.

California Portland Cement Expands Plant at Mojave

California Portland Cement Company, Los Angeles, Calif., has completed the expansion program begun at the Mojave (Calif.) plant in June, 1956, thereby increasing production capacity to 17,500 bbl. per day.

Included in the new equipment are an impactor, screens, five grinding mills, 22 silos, and three additional kilns. In addition, the storage building was lengthened by 350 ft., and the shop and storeroom by 80 ft. Another overhead crane was also installed to handle clinkers and raw materials.

American Cement Corp. Gets $9,000,000 Contract For Glen Canyon Project

American Cement Corporation, Los Angeles, Calif., has been awarded a $9,741,000 Bureau of Reclamation contract to supply 3,000,000 bbl. of cement for the Glen Canyon Dam and power plant, to be built on the Colorado River in north-central Arizona. The firm was low bidder at $3.2473 a barrel.

Delivery of the cement is expected to begin in August, 1959, and will continue over a five-year construction period. The company plans to supply the cement by direct truck haul from its new plant, which will be built at Clarkda'e, Ariz. This plant is scheduled for completion before the close of 1959.

Glen Canyon Dam is a key structure in the Colorado River storage project and has been under way since April, 1957.

Walter H. Coleman Retires From Arizona P. C. Company

Walter H. Coleman, sales manager of the Arizona Portland Cement Company, a subsidiary of the California Portland Cement Company, retired on April 1 after 30 years of service with the organization. He joined the parent firm in April, 1928, as sole sales representative for the state of Arizona and remained in that capacity until 1949, when he became sales manager of the Arizona subsidiary.

Succeeding Mr. Coleman will be D. M. Whitley, who has been Tucson sales representative for the last six years.

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ONTARIO CUSTOM CRUSHING LIMITED
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Designed to produce 150 tons per hour when making all minus ⅞" aggregate—this modern, compact Telsmith plant can make all sizes of washed sand and gravel for construction requirements, including minus 1¼" plus ⅞", minus ⅞" plus 9/16", minus 9/16" plus 3/16", minus 3/16" sand.

Telsmith Equipped Throughout—CRUSHING UNIT: 30" x 5'6" Standard Duty Plate Feeder • 5' x 12' Double Deck Vibro-King Scalper • 13-B Gyratory Breaker • 48-FC Gyrasphere Secondary Crusher. WASHING-SIZING UNIT: Two 5' x 12' Triple Deck Vibro-King Sizing Screens • 24" x 19' Twin Screw Sand Classifier • 24" DorrClone Classifier.

All plant equipment was furnished by Ontario Equipment & Supply, Ltd., Telsmith Distributor, Toronto.

Send for Bulletin 266

Close-up of Crushing Unit showing Telsmith Vibro-King Scalper, 13-B Gyratory Breaker, and 48-FC Gyrasphere Secondary Crusher.

G-30

Airview of complete operation by Photographic Survey Corp. Ltd.

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5,000,000-Bbl. Capacity Planned by Dundee Cement At New Michigan Facility

A group of 36 Michigan industrialists and officials from the Monroe-Dundee area recently inspected the facilities of the St. Lawrence Cement Company at Clarkson, Ont. During the tour they were briefed on the size, cost, and capacity of the large plant to be built near Dundee by the Dundee Cement Company, an associate of St. Lawrence.

Originally planned to cost $10,000,000 and to have an annual capacity of 4,500,000 bbl. of cement, the Dundee plant actually will cost an estimated $30,000,000, and capacity will be 5,000,000 bbl. This output reportedly will make the Michigan facility the "world's largest cement plant ever constructed at one time."

Gypsum will be shipped in through the Monroe port, but limestone and clay are available in abundance at Dundee. Limestone reserves are estimated to be sufficient for more than 100 years.

Port negotiations have been carried on during the last 18 months under the name of the Senned Realties Corporation. It was emphasized by Dr. Bernard Ulrich, president of the St. Lawrence company, that the new plant will be operated by an independent concern, incorporated in the United States, and not by St. Lawrence. He stated that the two kilns and five grinding mills will be "larger than any ever (before) constructed in the United States."

A model of the proposed plant will be displayed soon at the Monroe Home and Builders Show.

$250,000 Expansion Project Started by Medusa Cement

At Dixon, Ill., the Medusa Cement Company has begun a $250,000 expansion program for the shipping section of its plant.

Included in the new project will be two bulk loading silos, 84 ft. high and 26 ft. in diameter, capable of loading two railroad cars with cement in about 19 minutes. They will be built near the present storage silos.

The MacDonald Engineering Company, Chicago, Ill., has been awarded the contract.

M. A. Garrison

M. A. Garrison of Monolith Dies After 35-Year Service

Miller A. Garrison, 67, vice-president in charge of operations of the Monolith Portland Cement Company and Monolith Portland Midwest Company, Los Angeles, Calif., died on April 17. He had been connected with these companies since 1923, starting as a timekeeper. In 1928 he became assistant superintendent and a year later, superintendent, serving in that capacity for 20 years. He was elected to the vice-presidency and the board of directors in 1951.

A native of Monroeville, N. J., Mr. Garrison went west at an early age and was associated with various business ventures in Washington and Idaho before going to California to join the Monolith companies.

Pacific Cement & Aggregates Continues Expansion Plans

Pacific Cement and Aggregates, Inc., San Francisco, Calif., announced it will spend the same amount for capital expansion in 1958 as it did the last year. Expenditures totaled $1,680,705 in 1957.

This year the company plans to add new machinery to its aggregate plant, complete the change-over from oil to natural gas at its cement plant in Davenport, Calif., and add concrete mixer trucks to its fleet.

At the Davenport, Calif., plant, a 1,500-bbl.-per-hour cement-loading facility was recently installed. The firm has spent more than a million dollars on improvements and expansion at Davenport since 1956.

Stirling Tomkins Honored At N.Y. Trap Rock Event For 40 Years of Service

New York Trap Rock Corporation recently paid tribute to Stirling Tomkins of Netherwood Road, Hyde Park, former president of the corporation, who is currently serving as director and consultant.

Mr. Tomkins was honored at a barge commissioning held in his honor at the Haverstraw plant, where a new steel barge was christened by his wife, Marion Ferree Tomkins. At this time he was cited by Wilson P. Foss III, president, for the active part he played in the progress of the firm.

In 1919 Mr. Tomkins became manager of the Tomkins Cove Stone Company and was named president in 1921. When the company was purchased by New York Trap Rock in 1927, Mr. Tomkins became vice-president of operations —a post he held until 1938, when he became president of Trap Rock.

In 1947 Mr. Tomkins retired from the presidency of New York Trap Rock Corporation and assumed the duties of a director and consultant.

$2,000,000 Callanan Plant Planned at Newburgh, Pa.

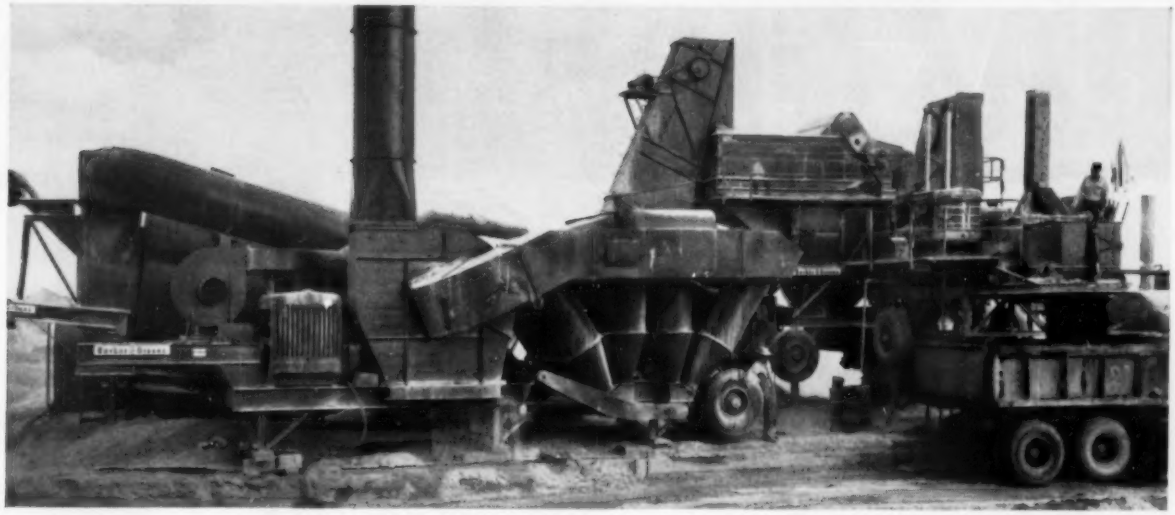
Management of the Callanan Road Improvement Company, Albany, N. Y., has disclosed plans to construct a $2,000,000 crushed stone plant near Newburgh, N. Y., supplementing stone quarries and bituminous concrete plants at South Bethlehem and Kingston, both in New York.

The announcement follows a decision made by the Appellate Division, Second Department, in New York City, which upheld the firm's right to construct the quarry and stone crushing plant three miles north of Newburgh.

Callanan bought the 125 - acre tract, containing extensive deposits of dolomitic limestone, four years ago.

The British Columbia Cement Company, Ltd., has moved its Vancouver office to a new location at 540 Burrard Street.

Machines of tomorrow ready to cut your costs today



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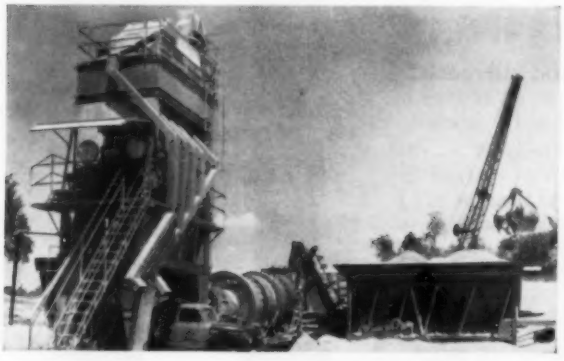

The only batch plant designed for truly automatic operation, Barber-Greene BatchOmatic simultaneously measures all sizes of aggregate and eliminates the human element in achieving accuracy and maximum capacity. Instantly switched from automatic to manual operation and from manual to automatic. New Dyna-Mix pugmill gives thorough coating in less time than any other batch pugmill made. Instant, positive inspection of aggregate gradation and weight. Available in 2000-, 4000- and 6000-pound sizes.

The new Model 879-B Finisher is establishing even higher standards of speed, accuracy and economy. Latest improvements include greater receiving hopper capacity, new transmission for faster operating and travel speeds, higher-speed tamper for faster laying speeds, new crawlers which further decrease maintenance costs, and new power unit with 20% more power for pushing even bigger trucks and handling even steeper grades. Automatic leveling and independent tamper combine to produce a level surface that will stay level under rolling and traffic.

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A "bottom-hole" air-operated impact tool for high speed, low cost drilling of hard rock formations

- **TROUBLE-FREE SERVICE —**

  Two moving parts in high pressure tool and *only three* moving parts in the low pressure tool.

- **FASTER PENETRATION —**

  — because all the air is used to drive the extra-heavy hammer and then pass through bit nozzles to remove cuttings.

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  — results from high impact efficiency and advanced bit design.

THE MISSION HAMERBIT

This bit is designed for use with the Hammerdril. It features six massive tungsten carbide inserts placed to produce maximum cutting efficiency and straight, full-gage hole. Mission Hammerbits may be resharpened in the field many times.

The Hammerdril has been developed and field tested for over eight years and is backed by a company with over 30 years' experience manufacturing oil well drilling equipment. If you do any hard rock drilling, it will pay you to get more information. Just fill in the coupon.

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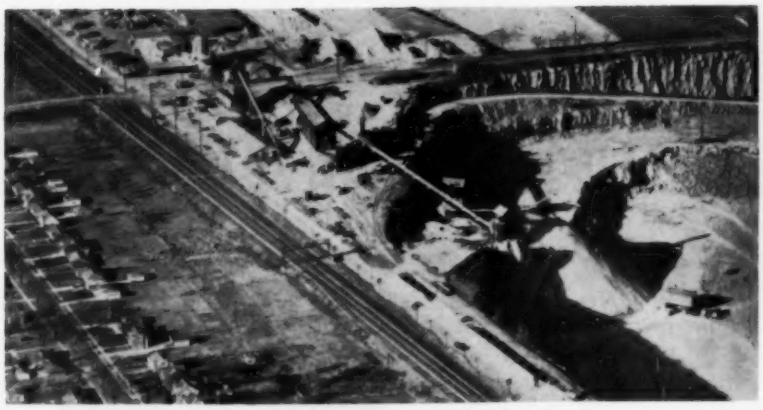

An aerial view of the Elmhurst (Ill.) limestone quarry and headquarters of the Elmhurst-Chicago Stone Company.

Elmhurst-Chicago Stone Marks 75th Anniversary Of Company's Founding

This year the Elmhurst-Chicago Stone Company is marking its entry into the fourth quarter-century of its service as a supplier of limestone and ready-mix concrete to DuPage and Cook County contractors and builders. From a small corporation launched 75 years ago at a single location, the company has grown into a major producer of crushed stone, sand and gravel, agricultural limestone, ready-mixed concrete, and concrete building units. Mechanized operations are maintained at five sites within the orbit of its headquarters offices at Elmhurst, Ill.

The company officially marked its 75th year of business recently, at an all-day outing for its friends and customers at Woodridge Golf Club. The company purchased the course 10 years ago as the potential site of a gravel deposit. Well over 1,000 contractors, builders, dealers, and officials representing state, county, and municipal government bodies were present.

On May 24, 1883, Adolph Hammerschmidt, grandfather of the present company heads, and Henry Assman, a stone mason and contractor, established the firm of Hammerschmidt & Assman. The two men leased a small quarry about one mile west of what was then the village of Elmhurst. Two years later they purchased 11 acres from Louis Graue for $3,-300. In 1893 Mr. Hammerschmidt bought the interest of his partner; and his sons, William, Max, and Richard entered the business.

Two grandsons of the founder now head the company. George H. Hammerschmidt Sr., son of Max, was elected president in 1941. He started working with the organization as a salesman in 1923. Martin H. Hammerschmidt, son of William, is secretary-treasurer, a post he has held since 1934. He began working in the quarry in 1919. Both men are members of the company's 25-year Club of employees.

The fourth generation of Hammerschmidts is now active in the business. They are George Jr., son of the president, who is ready-mix manager; Charles, another son, who is in sales; and a daughter, Marjorie, who is office manager. Martin Hammerschmidt's son, Robert, is in the personnel department.

Cementos California Plant In Production at Ensenada

Production has begun at the new plant of Cementos California in Ensenada, Lower California, which was completed approximately 14 months after ground was broken.

This installation, representing an investment of $3,600,000, will have an initial production of 248 long tons per day. The entire output will be consumed in Baja California for the present, to help meet the current demand of 6,600 tons per month. Officials stated that the firm may ultimately enter the export market.

Heading the Mexican firm are the following: Clark Flores, president; Jose Gallegos, vice-president; Guillermo Boisson, secretary; and Walter Hussong, treasurer.

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BELT FASTENERS
TO JOIN OR REPAIR
CONVEYOR BELTS
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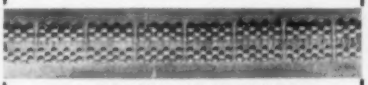

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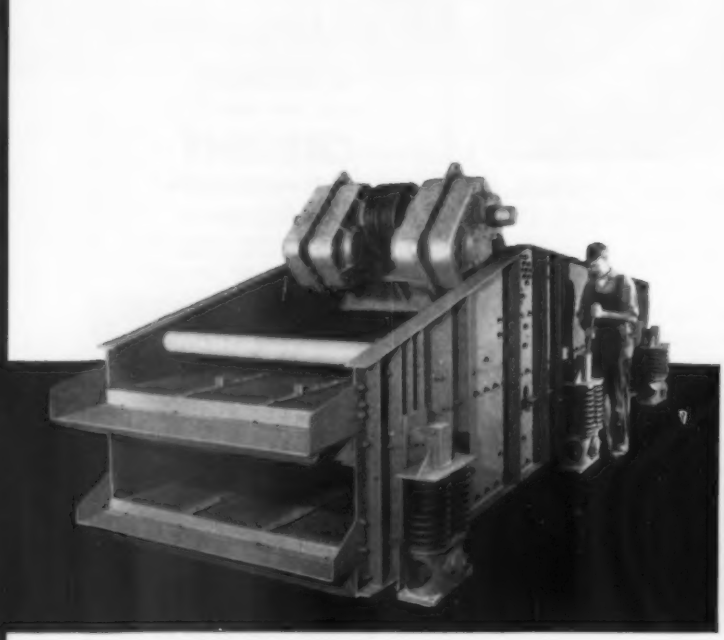

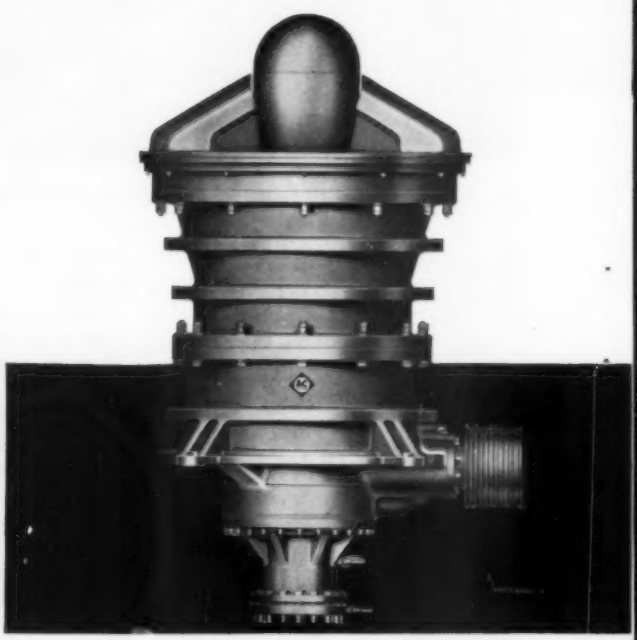

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Grinding mills — Whether your process calls for individual mills or a grouped-stage grinding series, Allis-Chalmers can make a right-for-the-job recommendation from seven types of grinding mills.

Vibrating screens — Allis-Chalmers screens are built in single or multiple-deck models for use in scalping, wet or dry sizing, washing, rinsing, dewatering and media recovery.

Gyratory crushers — "One-man, one-minute" product control slashes time required to change crusher settings from hours to seconds. Size adjustment, compensation for mantle wear, and emergency unloading are done at the flip of a switch.

"Work Index" Formula

This bulletin explains the "work index" formula — and how you can evaluate any size reduction operation. Compare efficiency of plants, circuits and machines. It offers the only practical approach for improving performance or determining the right machine for a job. Write for Bulletin 07R7995.

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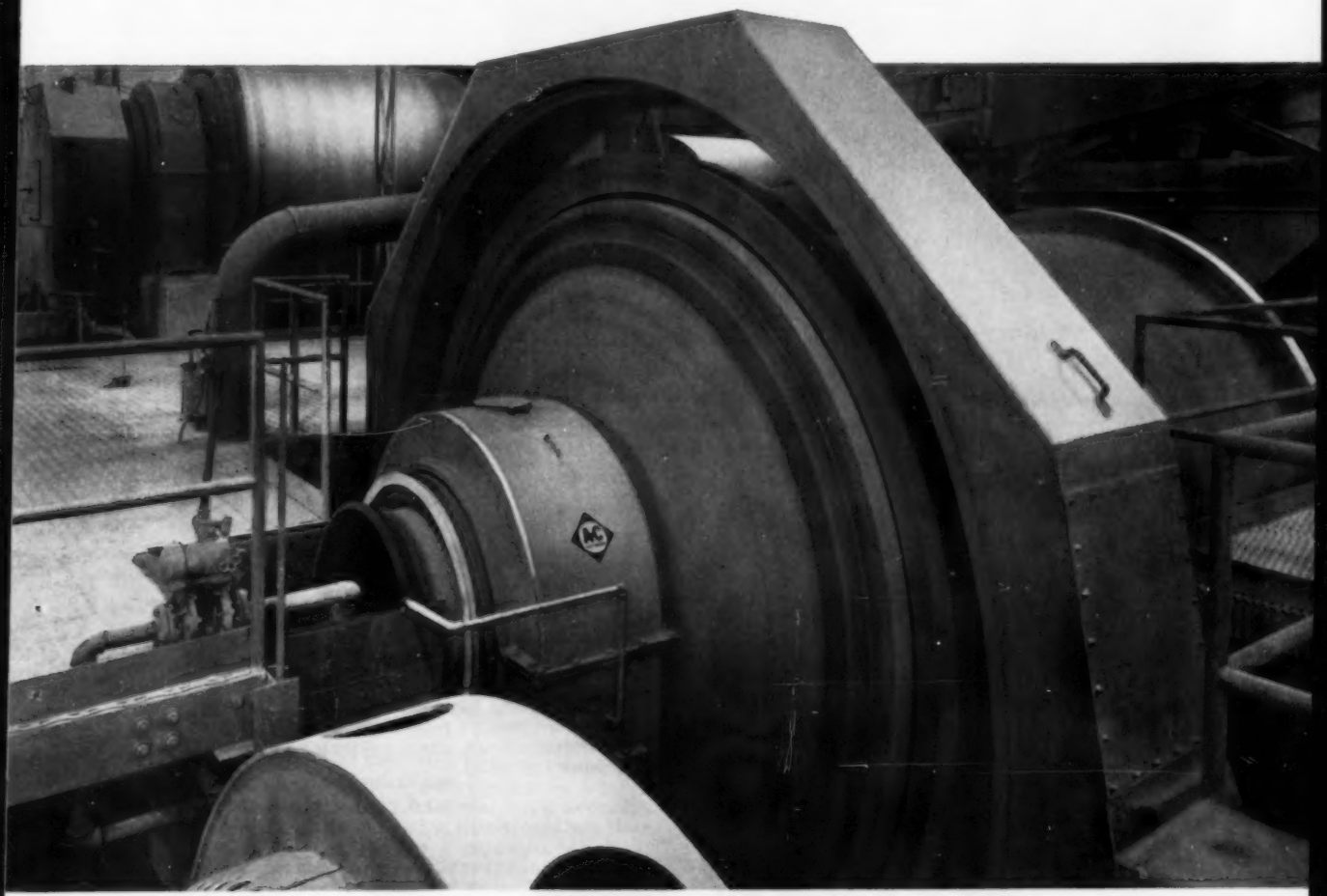
Make use of this valuable engineering in the early stages of your expansion or modernization program. An Allis-Chalmers technical team will gladly confer with you or your consultants. Your nearby Allis-Chalmers representative will arrange details. Get in touch with him, or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin.



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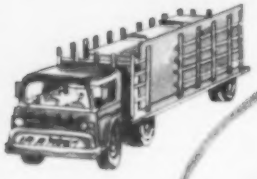

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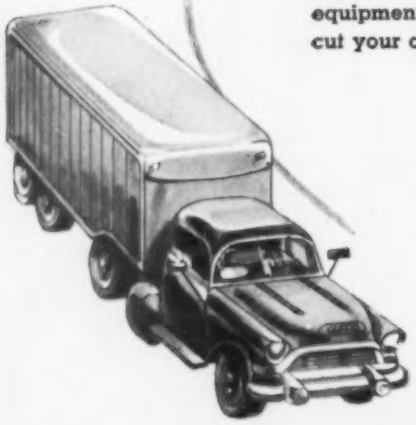

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HOWE

THE HOWE SCALE CO. · RUTLAND, VERMONT

A SUBSIDIARY OF SAFETY INDUSTRIES, INC.

Enter 38 on card, page 97

Permanente Outlook Improved By New Products, Facilities

Permanente Cement Company, Oakland, Calif., in its first quarter statement sent to share owners recently, reported consolidated net sales and operating revenue of $11,593,000, up 14 percent from the $10,123,000 for the first quarter of 1957.

Net earnings after federal income taxes totaled $1,141,000, equivalent to $.20 a share, up 31 percent over the $871,000 or $.15 a share earned in the first three months of 1957.

Permanente's "Brick Mix 21" brand cement, especially developed for the masonry industry of southern California, was recently introduced there. Its addition made available a full line of standard and special cements in the Southwest, including "Pronto" brand cement for the concrete products industries.

The company's accounting year is now on a calendar year basis, whereas last year the actual first quarter was February through April.

The Vinton Lime and Rock Company, Vinton, Iowa, has been sold to B. L. Anderson of Cedar Rapids, Iowa, according to James D. Tetrick, president and general manager of the Vinton concern. Included in the transaction was the company's quarry equipment. The Vinton company has operated since 1952, when it took over the quarry operations from Benton County Concrete Products, Inc.

An expanded exhibit for the second Civil Engineering Show is being planned in conjunction with the convention of the American Society of Civil Engineers to be held at the Hotel Statler in New York, N. Y., from October 13 to 17. Exhibiting firms will be limited to those supplying materials, equipment, or services used or specified by civil engineers.

Harry T. Campbell Sons' Corporation, Towson, Md., has purchased the Marriottsville quarries in Baltimore County. Products are crushed limestone and flagstone.

WILLIAMS REVERSIBLE IMPACTOR

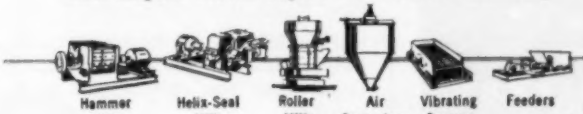
- 100% Impact Reduction
- No Friction Or Abrasion
- Unobstructed Discharge
- Less Upkeep Expense

Internal view showing manganese steel impact blocks, hammers and liners. Rugged, heavy steel plate construction. Extra large shafts are mounted in oversize bearings sealed in self-aligning housings.

Unequalled For Secondary Grinding

Reduces limestone and material of similar hardness to 1½", ¾" or smaller. Properly adjusted, the Williams Impactor makes excellent material with the proper percentage of fines for road base course. Unusually low upkeep expense as reduction is 100% by impact. Material is fed to enter between the hammers and is thrown against the impact blocks setting up a repeated ricochet action which accomplishes the reduction. Adjustable impact blocks adjust for wear. A reversing switch on motor permits rotating hammers in either direction, to the left today and to the right tomorrow, thereby giving double hammer life. No grates are used. Entire bottom is open permitting unobstructed discharge of crushed material and less wear and tear. A size for every job. Let us tell you about one for your use.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
802 St. Louis Avenue — St. Louis 6, Mo.



WILLIAMS
CRUSHERS GRINDERS SHREDDERS
Oldest and Largest Manufacturers of Hammer Mills in the World

Hoyt Wire Cloth Co. Rebuilds Damaged Plant—Competitor Gives Assist

On March 20 a 24-hour blizzard in the Lancaster, Pa., area caused the roof of the Hoyt Wire Cloth Company plant to collapse.

After a thorough survey, the management decided to rebuild the damaged portion of the plant at once. Most optimistic estimates were that, without unforeseen construction difficulties, production could be resumed in about 6 weeks. Arrangements for out-of-plant manufacturing were made with The W. S. Tyler Company, Cleveland, Ohio, a Hoyt competitor.

More than one-half of the roof area of the Hoyt Wire Cloth Company's plant in Lancaster, Pa., collapsed under the weight of the heaviest snowfall on record in that area. The rebuilt plant is again in full operation.

Since officials felt that additional floor space was needed to handle the demands of a steadily growing volume of business, it was decided to add 1,350 sq. ft. to the rebuilt section. This space will permit greater flexibility of equipment arrangement and speed delivery of finished products.

Hoyt resumed operations in the rebuilt plant on May 5, and the company resumed full production a few days later.

Lehigh Portland Cement Co. Issues Booklet on Cement

The ABC's of Portland Cement, a 15-page booklet, has just been published by the Lehigh Portland Cement Company, Allentown, Pa.

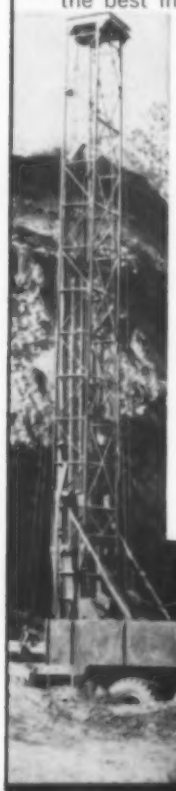
The history of portland cement, a description of the manufacturing process, and a discussion of the product made up the three-part booklet. The contents were based on addresses made before the National Ready Mixed Concrete Association and National Sand and Gravel Association's ninth annual short course on aggregates and concrete, held at the University of Maryland; the American Concrete Pipe Association sixth annual short course school of instruction, St. Louis, Mo.; and the Symposium on Good Concrete, Washington University.

KEYSTONE-FRANKS ROTARY MOLE DRILLING MACHINE

Phone for a Demonstration

Telephone: Beaver Falls, Pa. 69, or Kearny, New Jersey, 2-2600

For 6 ½" blast holes, our experience indicates that we can drill them faster and at a lower cost because we have combined the best in applied drilling engineering.



- Gardner Denver AM6 Mole Dril
- Timken 6½" carbide insert bits
- International Harvester Truck
- Cummins Diesel Engine
- Gardner-Denver WBJ Compressor, 600 CFM at 100 PSI
- Keystone Franks Rotary Mole Drilling Machine

While we DEMONSTRATE what we can do, we cut your drilling costs at the same time. Phone or write us for a DEMONSTRATION on your quarry, mine, road or construction job.

GARDNER DENVER COMPANY

MOLE DRIL DOWN THE HOLE GUN with Timken threaded carbide insert rock bit

STARDRILL-KEYSTONE COMPANY

MAIN OFFICE: BEAVER FALLS, PA., TELEPHONE 69

BRANCH: KEARNY, NEW JERSEY, TELEPHONE 2-2600

MANUFACTURERS SINCE 1882

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Enter 41 on card, page 97 →

Nothing like it on tracks ...in design or performance

model 12 PAYLOADER®

Years of Hough development and testing bring you this model 12 "PAYLOADER" that is years ahead of the field. It's the first built-as-a-unit tractor-shovel, completely designed for shovel work instead of a tractor attachment. It outperforms much larger units and is a driver's dream in ease-of-operation, easy riding, visibility and safety.

BALANCE Engine-at-rear is the basic difference. It spreads the weight of the machine and load over the entire track lengths instead of concentrating it on the front idlers. Result — more traction for digging, more stability for faster carrying, smoother riding, less track maintenance . . . PLUS the ability to work in soft spots where others would bog down.

SPEED Power-shift transmission and power-steer permit instant on-the-go shifting and steering that is fast and almost effortless. There's no pulling and pushing, no foot brakes. There is instant response and speeds up to 10 mph forward *and* reverse.

VISIBILITY Driver is comfortably seated up front where he can see what his bucket is doing and where he is going. He is also spared the bouncing action of conventional rear-seated locations.

For tractor-shovel performance and ease of handling like you've never seen before, ask your Hough Distributor about the model 12 "PAYLOADER". Ask him about Hough Purchase and Lease Plans too.

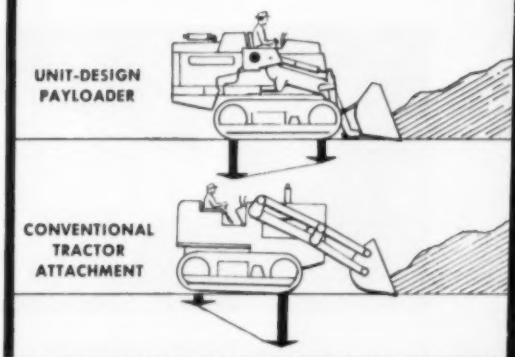
Modern Materials Handling Equipment

THE FRANK G. HOUGH CO.

LIBERTYVILLE, ILLINOIS

SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Rear engine mounting distributes weight over entire track length . . . gives you more traction and stability for digging, carrying and dumping.



THE FRANK G. HOUGH CO.

750 Sunnyside Ave., Libertyville, Ill.

Please send more information on the outstanding 1¾ cu. yd. model 12 "PAYLOADER".

Name _____

Title _____

Company _____

Street _____

City _____ State _____

6-C-3

Industry Personalities

GLENN E. RYNEARSON has retired as central Illinois field engineer for the Portland Cement Association after 34 years of continuous service. One of Mr. Rynearson's major assignments during his career was as testing engineer and construction supervisor on the Bates Test Road in Sangamon county.

NEAL R. FOSSEEN, northwest sales promotion manager for Gladding, McBean and Company, Los Angeles, Calif., became a consultant to the firm, effective May 1. Mr. Fosseen was president of the Washington Brick & Lime Company, Spokane, Wash., when that concern was acquired by Gladding, McBean last year.

L. J. Miller

LESTER J. MILLER has been elected executive vice-president of the A. P. Green Fire Brick Company, Mexico, Mo. He joined the company in 1923, and subsequently held various sales, engineering, and management positions.

In 1942 he became vice-president, and five years later, director of manufacturing. He was named vice-president in charge of operations in 1954, and in 1957 he was elected to the board of directors.

The Lehigh Portland Cement Company, Allentown, Pa., has transferred WALTER VIEBROCK, former plant manager at Iola, Kans., to the Union Bridge (Md.) plant, which is now in full operation after a recently completed expansion and remodeling program.

ALBERT A. OESTERLE JR. has been named safety engineer and plant chemist at the Louisville Cement Company's plant in Akron, N. Y.

J. D. MACKENZIE has been elected president of American Smelting and Refining Company, New York, N. Y.; R. W. VAUGHAN, formerly president, has been named vice-chairman of the board of directors; and R. L. JOURDAN has been chosen vice-president.

Mr. MacKenzie has been with Asarco for 38 years, having served as manager of several smelters and refineries in the United States, as a consultant to operations in Peru, as vice-president in charge of all smelting and refining operations, and as a director of the company.

The new vice-chairman of the board, Mr. Vaughan, joined Asarco in 1937 as assistant general counsel. He has been president of the company for the last year.

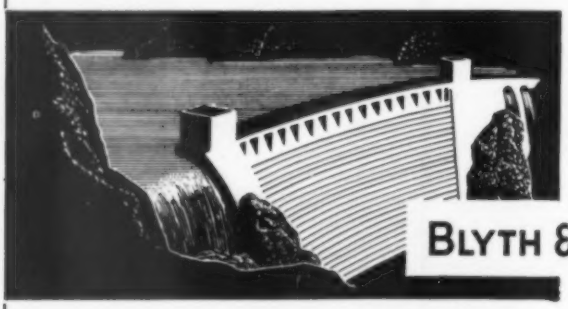
Mr. Jourdan has been with Asarco for 36 years, serving as a chemist and metallurgist. He has been manager of the ore purchasing department since 1941.

Cement Industry • 1958 Report

BUILT-IN FUTURE

Our 1958 report on the cement industry presents a comprehensive statistical review of all publicly-owned cement companies in the United States. Included are comparative figures on financial data, operating results and capital expenditures for each company.

This is our second annual report on this industry. It is written from the viewpoints of both management and investors. An analysis of the factual data presented should be of value to both.



A copy is available upon request

BLYTH & CO., INC.

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SACRAMENTO • FRESNO • SAN JOSE • PASADENA
SAN DIEGO • PALO ALTO • OXNARD

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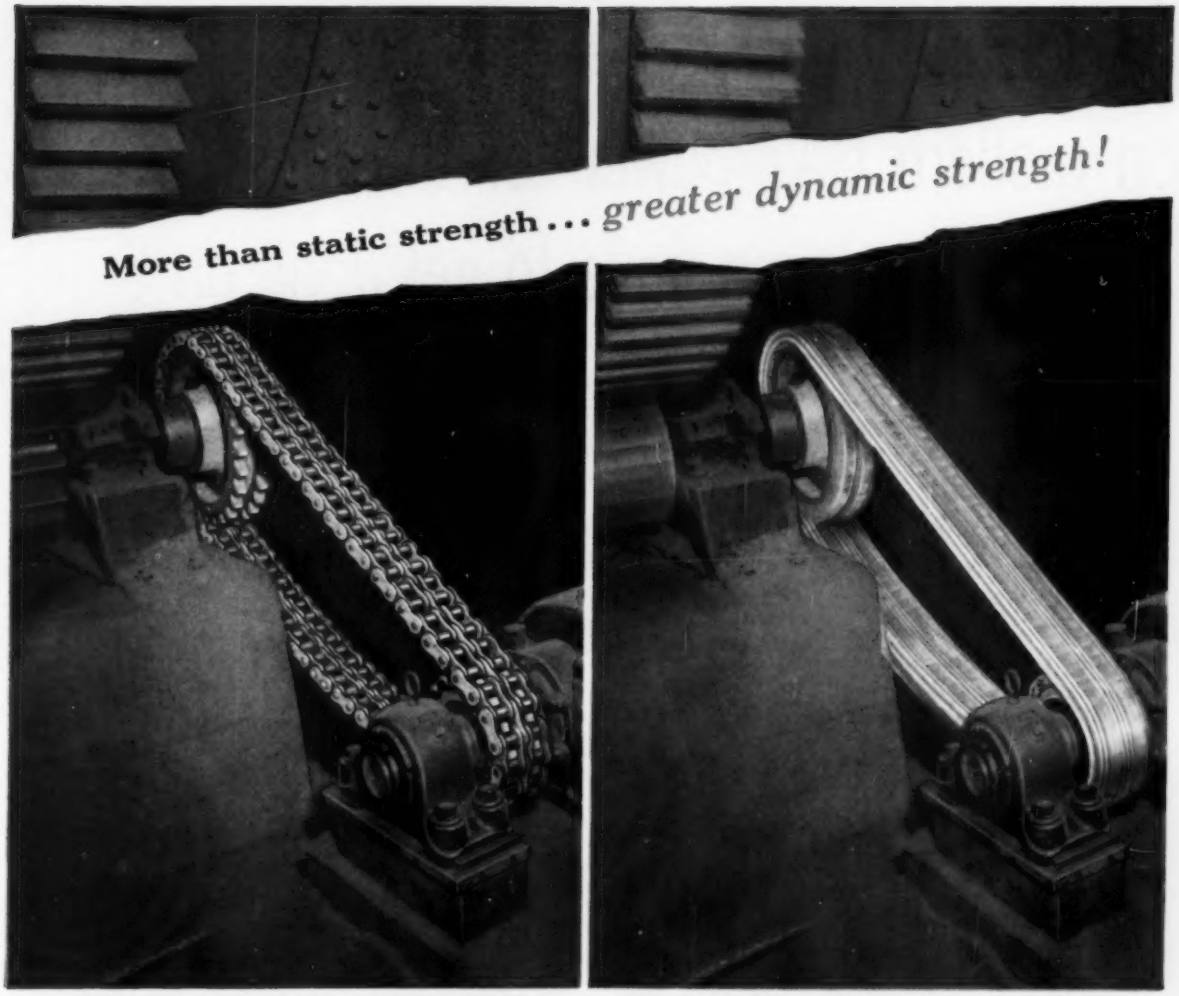


More than static strength . . . *greater dynamic strength!*

RESISTANCE TO TENSILE STRESS is achieved with properly heat-treated, accurately machined side bars made of premium steel and fitted with properly hardened pins, bushings, rollers.

STRENGTH OF CHAIN IN MOTION results from such refinements as pitch-hole preparation, micro-finish of parts, special processing of side bars, pre-lubrication, rigid quality control from materials selection to final boxing.

Big reason for the extra life from LINK-BELT roller chain

STARTING shock, heavy loads and impact of sprocket engagement on modern heavy-duty machinery requires a chain that will resist fatigue. That's why Link-Belt gives you *greater dynamic strength* to shrug off stresses. Pre-stressing, closer heat-treat control, lock-type bushings, shot-peened rollers—all these Link-Belt refinements contribute extra stamina for extra life . . . provide smoother, more efficient chain performance . . . reduce drive and conveying costs.

You have a choice of single- or double-pitch, single- or multiple-width chain. See your Link-Belt office or authorized stock-carrying distributor for facts.

LINK-BELT

ROLLER CHAIN & SPROCKETS

14.044

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.

Gravel and quarry operators rely on modern CAT power for the jobs that are hard and have to get done on time!

"Always use Cat power in the shovel. These engines are long on life and trouble-free."
—GEORGE PATTON, President, Calcite Quarry Corp.

"Very well satisfied with low operating cost and high production of our Cat Engines."
—FRANKLIN TURNER, Turner Lime and Rock Quarry

"Fits our dredge for power and size; when you set this Cat Engine, it will hold its RPMs."
—ERNEST HANSON, Supt., Frazer & Sons Inc.

"Like our Cat Engine's dependability and power, and we get real good service."
—JOHN ROFF, Supt., Coon Valley Gravel Co.

LIKE thousands of others, these owners and superintendents use Caterpillar Engines for the tough jobs, because they *must* have dependable power that keeps other equipment working full time.

To amplify just one of the above statements, Mr. Patton of Calcite Quarry Corp. of Lebanon, Pa., has good reason to be sold on Cat power for his shovels. The engine in his Lima, a Cat D11000, was installed in 1933 and is still producing big. Calcite purchased this shovel in 1942 and the engine hasn't required an overhaul by a Caterpillar Dealer since then! And since 1942 it has provided power to load more than 3 million tons of high-calcium rock. For one two-year stretch it operated 16 hours a day around the calendar handling hard rock in choke-dust conditions!

Because Cat power units are reliably rated and built to take the gaff, you often see them widely used on a single job. And for the same practical reasons, you find more and more job-wise contractors buying Cat Engines to *repower* equipment that won't produce as it used to.

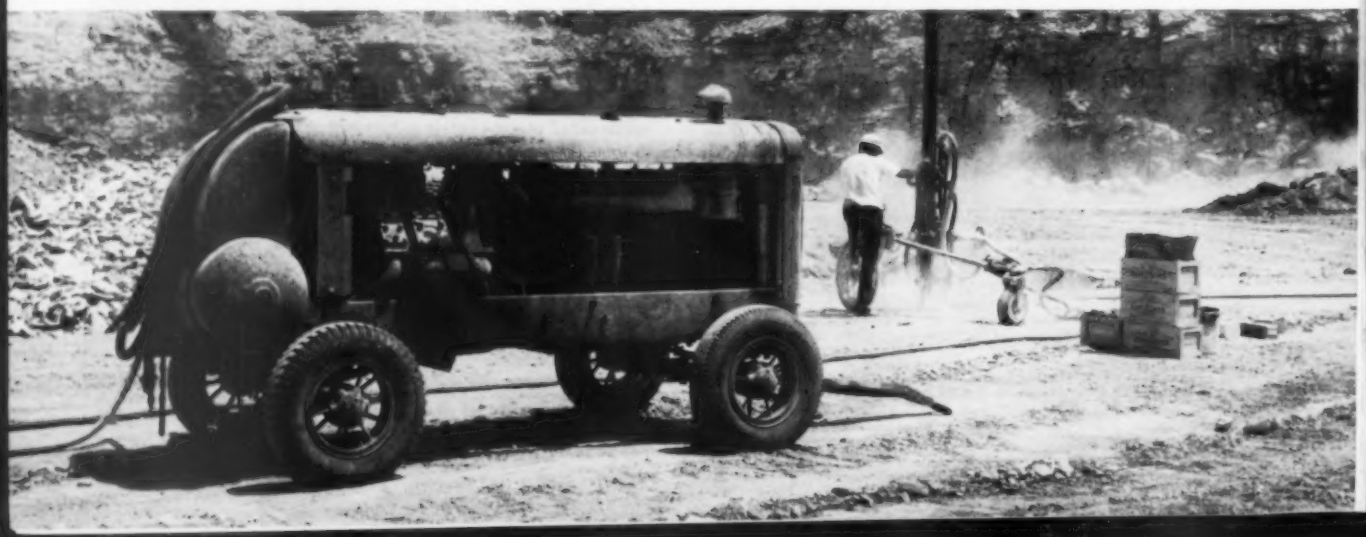
Cat Engines feature a 4-cycle design for smooth, efficient power. Fuel nozzles won't foul under changing load conditions, and Caterpillar's exclusive precombustion chambers save money by burning *all* the fuel *all* the time—even low-grade No. 2 furnace oil. The exclusive cast-in cast iron top ring band of the aluminum alloy pistons gives the durability of cast iron and the light reciprocating weight of aluminum for longer life. It all adds up to a power package that won't let you down and costs less to run.

Wherever you buy, Cat power can be supplied. And *when* you buy, Caterpillar Dealer service is assured. So see your nearby Caterpillar Diesel Engine Specialist soon about your power needs. Review your power line-up now and save down time later.

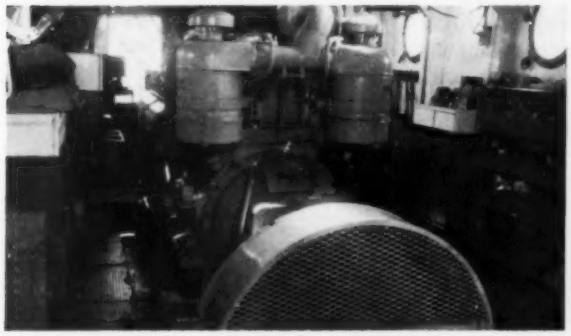
Engine Division, Caterpillar Tractor Co., Peoria, Ill., U. S. A.

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

A Cat D4600 Diesel Engine powers this Chicago pneumatic air compressor, used for drilling blast holes in lime and rock quarry at Shelbina, Mo. The owner of the Turner Lime and Rock Quarry says, "I have increased production and profits since standardizing on Caterpillar products." Quarry is 100' deep and 2 acres big. Cat Engines keep all your equipment working full time.



The Calcite Quarry Corp., Lebanon, Pa., has used the D11000 powering this Lima shovel hard since 1942 — "So," says President George E. Patton, "you can see this Cat Engine has proven its worth, giving us many years of trouble-free service at low operating cost." Rock taken from quarry near Lebanon is used as fluxing and in cement. Heavy-duty Cat Engines have negligible down time.



This modern heavy-duty Cat D397 Diesel drives a 12" Georgia Iron Works pump for dredging operations on a flood control project in North Palm Beach. One reason Superintendent E. R. Hanson bought Cat power was the "reputation of Caterpillar products."

Supt. John Roff, of the Coon Valley Gravel Co., bought Cat Engines for this job near Des Moines because "It's the best engine made!" Besides a D375, a D318 and a D8800, on the job, a Cat D397 Diesel drives an Amsco pump for this sand dredger.

ENGINE POWER BY CATERPILLAR

YOUR CATERPILLAR DEALER

has excellent service facilities to back your engine investment. 844 parts and service outlets throughout 125 countries of the world are strategically located to keep your Cat products earning for you. Here a diesel service specialist checks a fuel injection valve nozzle for proper performance.

Engine Division **Dept. PQ6**
CATERPILLAR TRACTOR CO., Peoria, Illinois, U. S. A.

Send me more information about Cat Engines for original power and repowering.

☐ Have your dealer call for an appointment, as I may be in the market for a Cat Diesel Engine or Electric Set. I understand that I am under no obligation.

☐ I am interested in learning more in general about these engines.

Name _____

Company _____

Address _____

City _____ *Zone* ____ *State* _____

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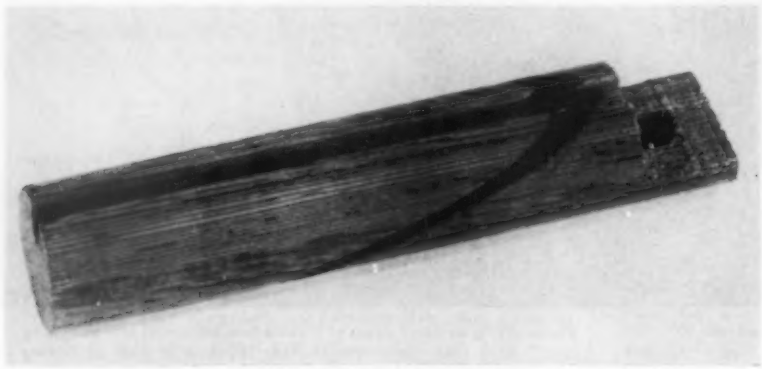
New Machinery

and Equipment

For Further Information Use Card on Pages 97-98



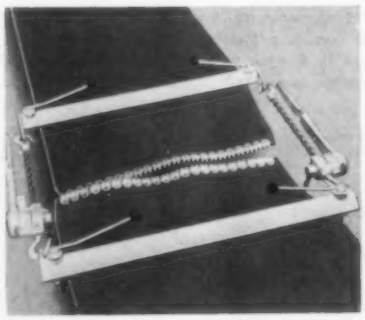
● From Charles Abbott and Associates comes the announcement of the Trublast rapid stemming plug, a device which reportedly provides a saving of 33 ⅓ percent on dynamite costs. The Trublast is manufactured by the International Trublast Stemming Corporation (Pty) Ltd., Johannesburg, South Africa. Manufacturing rights under patent registrations are available in several other countries and areas.

The Trublast plug is available in soft or hard woods, in any standard diameter. The soft woods are considered superior to hard woods, except in coal mines, as soft woods disintegrate and fill the drill hole more easily on explosion.

When the Trublast is placed in a drill hole against the dynamite charge, the maximum effect is obtained. The blast hole is totally stemmed up, forcing the blast to be directed into the desired area, and permitting the total force of the blast to be concentrated in one small area in the drill hole.

Other advantages claimed for the Trublast include greater yardage or surface removal; reduction in the length of sockets; greater fragmentation; saving in quantity of dynamite used; time-saving in stemming operations; and easy removal in case of misfires.

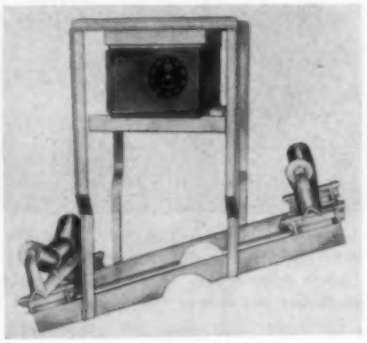
Dynamite is inserted into the shot hole; the last stick, with the fuse, detonator, and stemming plug attached, is inserted, with the round end of the stemming plug facing the charge. A sharp tap with a tamping rod separates the two members of the plug and starts the wedge action, which can be checked by pulling on the fuse. If the plug has not wedged satisfactorily, it will come out of the shot hole. **(351)**



● Flexible Steel Lacing Company announces the new LS-3 Far-Pul belt clamp, a heavy-duty clamp designed for long, high tension conveyor belt installations. The LS-3 is recommended for belts 30 to 36 in. wide.

The new clamp is of all-steel construction and consists of two pairs of clamping bars, one pair for each belt end. Each pair of bars is made up of three parts: V-bar (angle iron), round gripping bar, and draw-up bolt.

To apply, the V-bar is placed on top of the belt, back from the belt end. The round gripping bar, grooved to hold the belt securely, is positioned on the underside of the belt directly below the V-bar. Threaded holes at the ends of the gripping rod and V-bar are aligned . . . draw-up bolts are inserted and turned until the belt is locked between the V-bar and the rod. Standard "come-along" or "pull-up" tools are used to draw the belt ends together. **(352)**



● Thayer Scale Corporation has introduced a new totalizing inventory belt scale which recalibrates linearly. Scales with capacities of 100 lb. to 300 t.p.h. are available.

Scale and rollers support level or inclined conveyor systems at any location. The endless belt is not altered or interrupted. The totalizer can be remotely located or read directly at the scale. Recalibration is claimed to be simple and accurate; a known test weight is placed on the scale platform and a direct linear setting is made without the use of compensating chain or involved calculations. **(353)**

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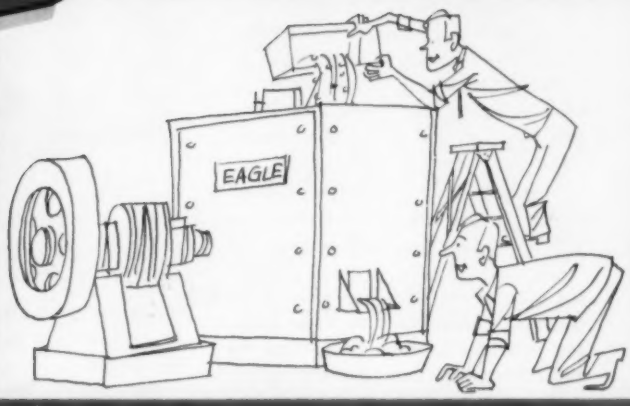
TEST REPORT

FROM

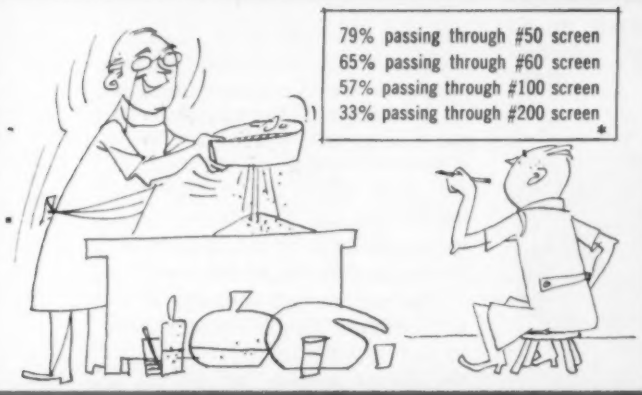
EAGLE CRUSHER CO., Inc. GALION OHIO U.S.A.

Several months ago we asked for samples of pit-run limestone (or after it had been through the primary) to put through an Eagle Cage Mill. Object: to show that you can get more production as well as a higher percentage of "Fines" with an Eagle! **Ag-lime fines bring more money!**

1 Here's what happened: Samples came in from all directions—barrels, boxes, bags, etc. . . . Let's see what happens in a typical test run.



2 The sample from Abbeyville Lime Company, (Abbeyville, Ala.) was first weighed and then put through the Eagle Cage Mill once—(single pass).



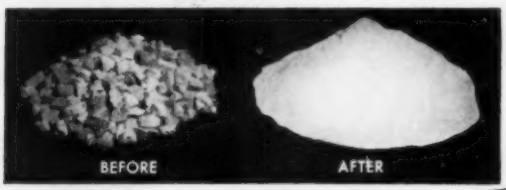
79% passing through #50 screen
65% passing through #60 screen
57% passing through #100 screen
33% passing through #200 screen *

3 Now to the Eagle Laboratory for gradation analysis. Here the batch is processed through U.S. Standard Sieve Screens—from #8 to #200 mesh —with the results shown above.

* Convinced by this gradation test, an Eagle Cage Mill is now operating in the Abbeyville plant where greater output—higher percentage of fines —are daily producing greater profits than before.

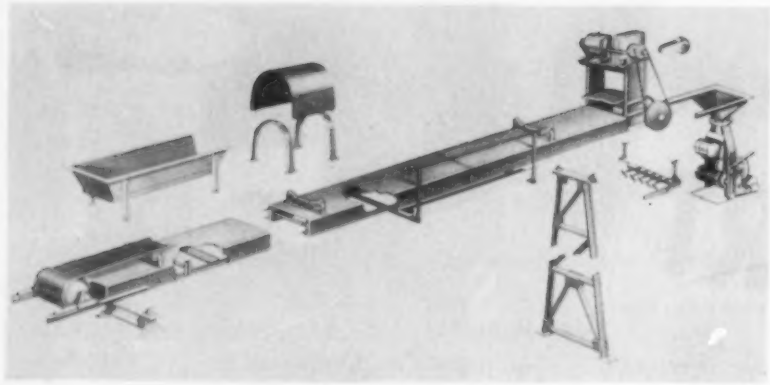
Compare this Abbeyville test result with **your** percentage of fines. If you would like to increase your percentage of fines—and your profit—send us a sample (200 lbs. to 500 lbs.) freight collect. See for yourself! **No cost to you—no obligation!**

AG-LIME FINES BRING MORE MONEY!



SEND US A SAMPLE

TO: Eagle Crusher Company
Galion, Ohio



● Stephens-Adamson Manufacturing Company introduces a new pre-engineered sectional belt conveyor available in 18, 20, 24, 30, and 36 in. belt widths, with drives ranging up to 50 hp.

The new packaged unit, complete with head and tail assemblies, supporting "A" frames, and intermediate sections of bent-plate decking, provides low initial cost and maximum flexibility.

The bent-plate decking is punched every 8 in. in rows on top, bottom, and along its sides. The sturdy 12-ft. sections of steel decking provide for simple erection and ease of alteration of the conveyor. The decking provides its own protection for the return belt run. Return rollers and returning belt are mounted on its underside, shielded from weather and falling material.

The unit is pre-engineered and aligned for simple erection. Four bolts fasten the head assembly; four high-strength bolts securely join the intermediate sections; six bolts connect the tail assembly.

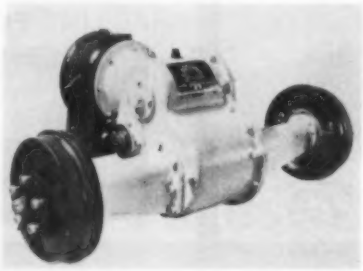
Included with the pre-engineered sectional belt conveyor is the new S-A pulley, which features a new radius crown providing more belt training effect with less belt stretch . . . plus the all-steel S-A Squeeze-block hub. (354)

● A new wire rope combining the features of Lang lay rope and regular lay rope has been announced by the Wire Rope Division of John A. Roebling's Sons Corporation. Herringbone wire rope is a new construction employing two pairs of Lang lay strands and two strands of regular lay. This new wire rope has relatively large outside wire construction to take the pressure and abrasion of contact with sheaves and drums, combined with smaller

inside wire construction patterned to provide the maximum flexibility in service.

Herringbone wire rope has proved excellent in such varied service as shovel ropes, wagon scraper ropes, dragline ropes, holding and closing lines, and general hoisting.

Features include flexibility, good resistance to shock and abrasion, smooth operation around drums and sheaves, and easy spooling properties. (355)



● Transmission & Gear Company has developed a small two-speed forward and reverse transmission-axle combination unit equipped with hydraulic forward and reverse clutches running in oil.

The new unit, designated the RT-629-C axle and transmission, eliminates the necessity of an engine clutch in fork lifts, loaders, and similar material handling equipment.

Gear ratios are 10 to 1 in high speeds and 24 to 1 in low speeds. Capacity is 30 hp. input at 2,000 r.p.m. The unit is available with thread widths of 35 in., 40 in., 48 in., and 62 in. (356)

● Aluminum clamshell buckets in 3- to 10-cu. yd. capacities have been introduced by The Owen Bucket Company. Use of aluminum in the buckets reduces materially the dead weight of the bucket, reducing the crane load and allowing increased payload.

Incorporated into the design of the buckets are several features to

minimize wear and strain. Tandem positioning of the lower closing sheaves permits the closing line lead to function in the center plane of the bucket. This center-line reeving eliminates bending of the cable at the guide rollers as the bucket is hoisted and also permits the bucket to hang plumb from the crane boom, increasing the life of the cable.

The use of high-strength, abrasion-resistant alloy aluminum plate in side and bottom bowl plates of the bucket permits the use of a bucket of greater capacity than that specified for a given crane. In addition, lighter weight can offset the weight of other desired features, such as equalizer bars or holding sheave blocks. (357)

B.F.Goodrich

B.F.Goodrich Rock Service tires speed highway construction for contractor

CKG ASSOCIATES put 115 pieces of equipment on the job to speed completion of the Northern Illinois Toll Road near Elgin. Trucks, tractors, earthmovers, cement-mixing machines —all work 12 hours a day, 6 and 7 days a week. Helping this equipment stay on schedule are 8 different types of B.F.Goodrich tires, headed by the new Rock Service Tubeless. Fast, expert on-the-job tire service given by the local B.F.Goodrich dealer is one reason for this choice.

Another is outstanding tire performance. The new B.F.Goodrich Rock Service tire is built to its inflated shape. The whole tire flexes evenly—no *localized* stresses that often cause unnecessary tire failure. The B.F.Goodrich FLEX-RITE NYLON cord body withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks. Result: more retreadable Rock Service tires.

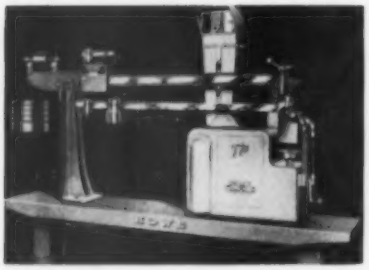
The Rock Service double chevron tread gives maximum traction. Rugged sidewalls defy rock bruises. And B.F.Goodrich Tubeless construction is available. It protects against punctures, cuts maintenance costs, is easier to service. Tires run cooler.

See B.F.Goodrich Rock Service Tubeless or conventional tires at your nearby B.F.Goodrich dealer, who is listed under Tires in the Yellow Pages of your phone book. He has a money-saving tire for every construction job. *B.F.Goodrich Tire Co., A Division of The B.F.Goodrich Co., Akron 18, Ohio.*

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

B.F.Goodrich *truck tires*

© The B.F.Goodrich Company



● A redesigned Weightograph for automatic weight projection has been announced by the Howe Scale Company.

The Weightograph projects the actual weight on a large illuminated screen in a non-protruding, eye-level periscope housing. The indicated weight, figures, and graduations are all projected optically in the same plane, which eliminates parallax and resulting errors in reading. Weight indications can be read accurately many feet away from the scale.

Chart, pendulum shaft, and levers operate on precision ball bearings; the Weightograph mechanism contains no gears, friction discs, racks, pinions, or weighing springs. **(358)**

● Eagle Crusher Company has added to its line a new, larger jaw crusher with a 30 in. by 42 in. feed opening. According to the manufacturer, this model will serve in many cases as a primary crusher. Rated capacity is 125 to 400 t.p.h.

The crusher requires a 125-150 hp. motor to attain and hold normal operating speed of 200 r.p.m. Other features include a 58 in. flywheel, reversible jaws of manganese steel, special bearings, and special alloy steel in eccentric shaft.

Safety toggle seat of Pitman is replaceable. Crusher jaws are adjustable, while operating, from ½ in. to 8 in. **(359)**

3,600 tpd LAKESIDE STONE SCHEDULE

demands Brunner & Lay ROK-BIT's speed

This highly mechanized crushed stone operation at Greenville, N. C. requires the best of fast drilling carbide bits. Brunner & Lay Rok-Bits are used 100%. 3½-in. blast holes are put down in granite in a 10- by 10-ft. pattern to 40 ft. depths.

Brunner & Lay Rok-Bits discharge more and larger chips, thru wider channels. Drill ROUND—easy-to-load blast holes. They work on new, uncut rock; not in their own cuttings. Fit directly on 600 series extension steel. See your distributor, or call our nearest plant.

Request NEW bulletin DA 1-58. Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill. 76 progressive years. Plants & warehouses: Philadelphia, Asheville, Birmingham, Dallas, Albuquerque, Denver, Los Angeles, Sacramento, Portland, Seattle, Montreal.

Brunner & Lay carbide Rok-Bits are available in the 600 series (illustrated) and also in 1,000, 700, 400, 200 series, J5.23, J5.5 and J7.50 thread in sizes 5" down thru 1¼". Our larger Rok-Master bit in 6"X and Rok-Master in 6"X, 6½"X and 7"X.

Brunner & Lay Products

CARBIDE ROK-BITS • INTRA-SET STEEL • DRILL RODS • COUPLINGS, ADAPTERS & EXTENSION STEEL

Enter 50 on card, page 97

● Exit gases from cement kilns and other types of combustion equipment are continuously sampled, cooled, washed, and analyzed for oxygen and combustibles content by a new gas analysis system available from the Bailey Meter Company.

Completely enclosed in a single compact cabinet, the analysis system contains a gas pump, washer, separator trap, electrical switch gear, and the gas analyzer. **(360)**

Portrait of a producer enjoying his trouble-free SECO screens

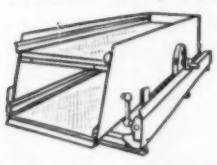
SECO

TRUE CIRCULAR ACTION

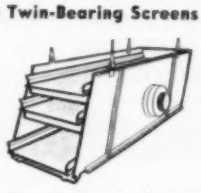
VIBRATING SCREENS

You can't see the SECO VIBRATING SCREENS in this picture . . . but they're on the job for this successful producer . . . while he enjoys a day of trout fishing. . . . And that's the point. Not only are hundreds of today's successful producers putting out greater tonnages, cleaner, more accurately sized materials to meet buyer's stiffer specifications . . . they're doing it with less personal supervision . . . and little, or no, maintenance worries . . . thanks to dependable, smooth-operating SECO vibrating screens on their jobs. Why not put yourself in this picture?

SECO 4 Bearing Screens



SECO Twin-Bearing Screens

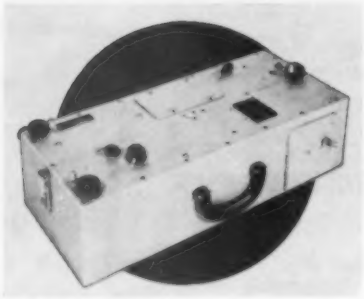


The complete line for every screening job from Ag-lime to Rip-Rap

Go modern! Put Seco screens to work for you!

SEND FOR FOUR-BEARING CATALOG #204
OR TWIN-BEARING BOOKLET #TB 21

SCREEN EQUIPMENT CO., INC.
Buffalo 25, N.Y.



● Now available from the W. F. Sprengnether Instrument Company is this portable blast and vibration seismograph, a completely self-contained monitoring and recording device.

The rigid aluminum carrying case measures 25 by 18 by 8 in., and weighs only 38 lb. The unit requires no external power source connections. (361)

● International Harvester Company has introduced a new 134 hp. diesel crawler tractor, designated the Model TD-20. The TD-20 has speeds ranging from 1.5 to 7 m.p.h. in forward range and from 1.8 to 8.4 m.p.h. in reverse. Drawbar horsepower is rated at 111 with a maximum drawbar pull of 27,500 lb. in first gear at 1.5 m.p.h. The 74-in. gauge tractor has an operating weight of 29,300 lb.

Using a six-cylinder, four-cycle D-691 diesel engine rated at 134 net hp. at 1,550 r.p.m., the TD-20 can operate up to a maximum 45-deg. angle with positive lubrication to all engine working parts.

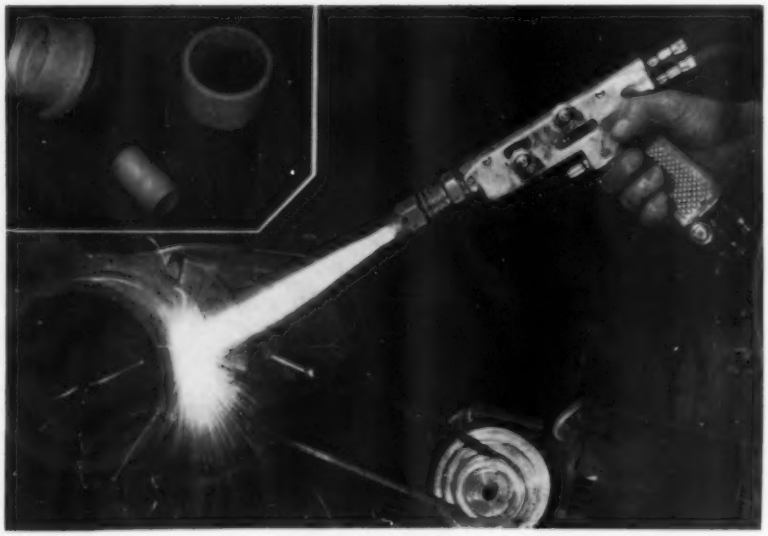
The six-speed, full reverse transmission provides operators with a single stick control which can be used to shift through any of six speed ranges. When the directional "shuttle bar" shift lever is moved, the tractor travels either forward or reverse in any of the six-speed ranges. (362)

● The B-40 Explorer drill, specifically designed for augering, core drilling, and large diameter earth boring, has been introduced by Mobile Drilling, Inc. This unit is used for continuous flight augering to 75 ft.; for coring to 500 ft.; and for boring holes up to 24 in. in diameter. The drill is quickly convertible from one type of drilling to another.

The B-40 is self-powered by a four-cylinder, 36 hp. air-cooled engine. It is also available without engine for mounting on any PTO-equipped truck or tractor.

The PTO model weighs only 1,400 lbs., making the Explorer advantageous in locations which are inaccessible to larger, heavier drills. To increase mobility, both tower and drill frame lower to horizontal position. This feature also permits drilling at any angle from vertical to horizontal.

Hydraulic drive delivers high torque to assure positive augering action. Drilling speed ranges from 62 to 500 r.p.m. with maximum torque output of 1,740 ft. lb. 68 in. stroke is actuated by a powerful hydraulic cylinder exerting 7,069 lb. ram pressure. Rate of free feed is 35.3 f.p.m. Centralized controls permit one-man operation. (363)



● Kenspray, a new tungsten carbide powder for spray hardsurfacing, has been introduced by Kennametal Inc. With the new Kenspray powder, irregular shapes and flat surfaces can be easily coated—the size and shape being limited only by accessibility required by the spraying equipment. Only a relatively thin coating is needed for wearproofing; coatings of Kenspray can be controlled from .010 in. to .090 in.

According to the announcement by Kennametal, the Kenspray powder can be quickly applied to steel parts by hand-held or mechanically held metal spraying equipment. The part being hardsurfaced and the Kenspray coating are then heated by an oxyacetylene torch or in a furnace to fuse the hardsurfacing deposit to the base metal. Because of its high hardness, Kenspray surfaces cannot be machined but can be ground with diamond or silicon carbide wheels to close tolerances. (364)

Get extra pipe line life

with abrasion-resistant Armco Pipe

This 14-inch-diameter Armco Special Analysis Steel Pipe carries an abrasive sand and gravel mixture from the dredge to the processing plant at the McGrath Sand and Gravel Company's Peoria County, Illinois, operation.

Your costs per yard of material handled are *lower* with long-lasting Armco Special Analysis Steel Pipe. The extra abrasion resistance of Armco Pipe has been proved in all types of dredging and hydraulic mining operations.

You'll also find extra savings and convenience in the wide range of sizes, lengths, and joints.

Wide size range

You get exactly the pipe you need from the exceptionally wide range of sizes. Diameters from 6 to 36 inches; wall thicknesses from 0.064" to 0.5".

Lengths up to 50 feet

You can specify exact lengths up to 50 feet. Long lengths save joints, speed installation.

Variety of joints and end finishes

Armco Pipe can be supplied with flanges or with machine-reduced or expanded ends. Pipe ends can also be prepared for standard couplings, welding or various special joints.

Write us for prices and delivery time. We'll be glad to give you helpful data related to your specific needs. Armco Drainage & Metal Products, Inc., 4048 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.

ARMCO®

Armco Special Analysis Steel Pipe

THE TREND IS TO ALLIS-CHALMERS . . .

the fastest-growing name

Three models to help you match your job needs.....

TS-360

Fastest-loading big machine in the business... 280 hp moves 20 yd loads at high speed.

In 1957, earth movers the world over bought more Allis-Chalmers motor scrapers than ever before. This growing popularity is the best proof of the productivity and reliability of this outstanding line. There are good reasons for the trend toward Allis-Chalmers construction machinery . . . investigate these advantages before you buy. When you've seen and tried these high-performance motor scrapers, you'll know why more dirt movers every day . . .

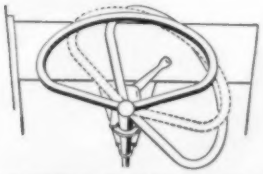
Look ahead...*move ahead*...and stay ahead

in motor scrapers

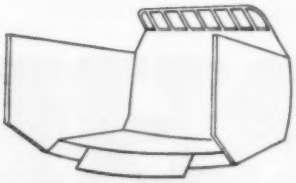
TS-260 A new measure of performance in this size range . . . 200 hp . . . 14 yd . . . full 90-degree turning.

TS-160 True versatility and economy in a utility machine . . . 155 hp . . . 9½ yd . . . turns non-stop in less than 25 ft.

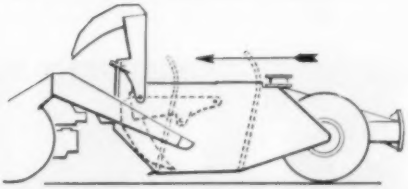
the only line with all these basic advantages in every size . . .



SELECTIVE HYDRAULIC STEERING . . . accurate, sure control at any speed . . . fast, full-swing steering with a 30-degree turn of the steering wheel right or left.



LOW, WIDE BOWL . . . loads full — fast — with low resistance, live action.

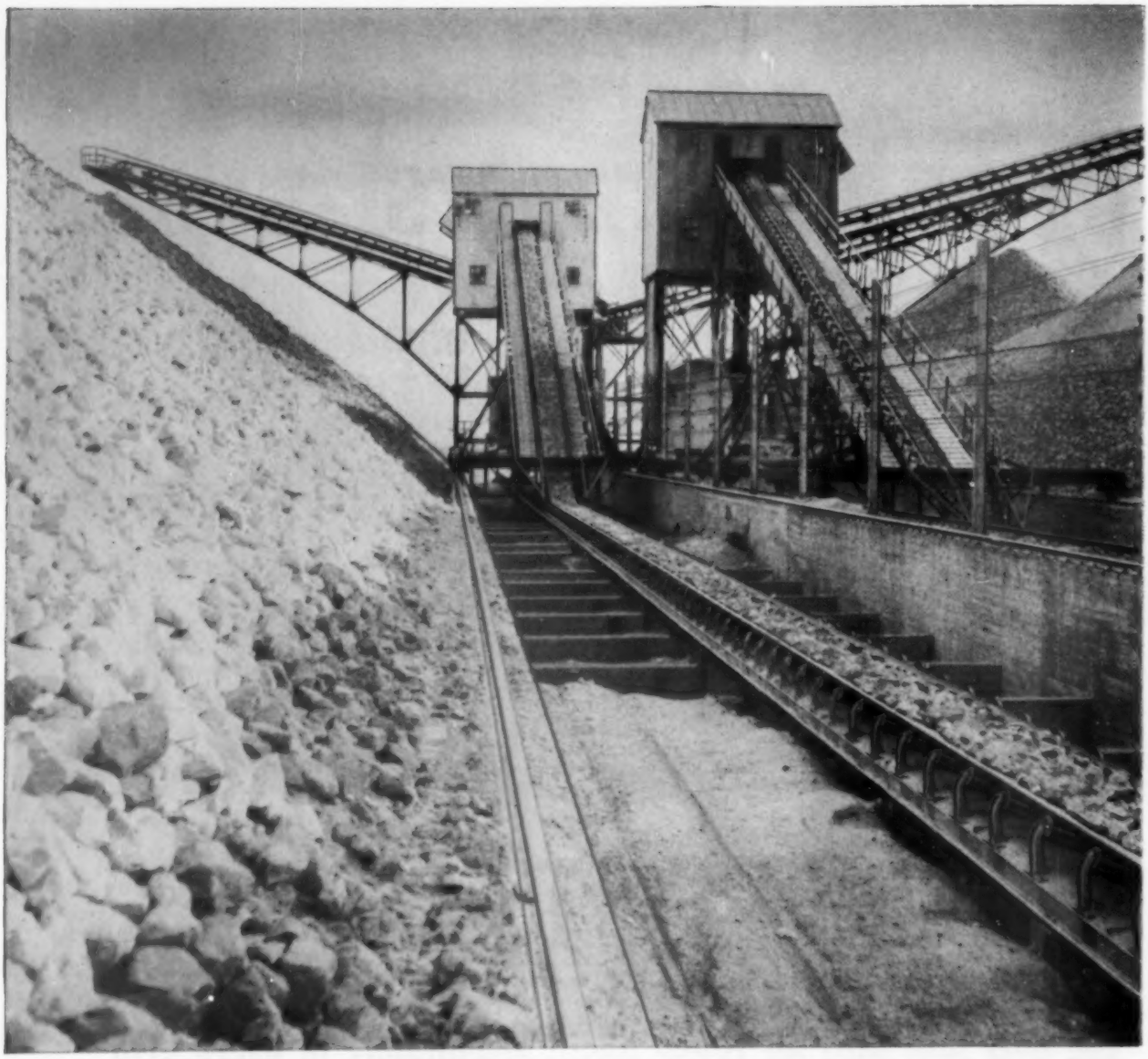


POSITIVE FORCED EJECTION WITH HIGH APRON LIFT . . . speeds unloading cycles. Apron opens high as positive ejector dozes out the load . . . clean and quick.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

with ALLIS-CHALMERS

A-C ALLIS-CHALMERS



This conveying system highballs huge rock tonnages for Inland Lime and Stone Company, Port Inland, Mich., one of the world's largest producers of crushed stone. These are two of four giant stackers delivering stone to storage.

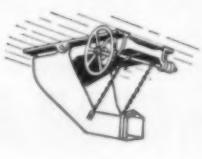
STEPHENS

THE BIG NAME IN BULK MATERIALS HANDLING

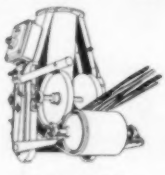
BELT CONVEYOR

CARRIERS

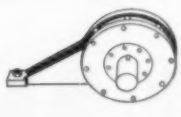
MANGANESE STEEL PAN FEEDERS



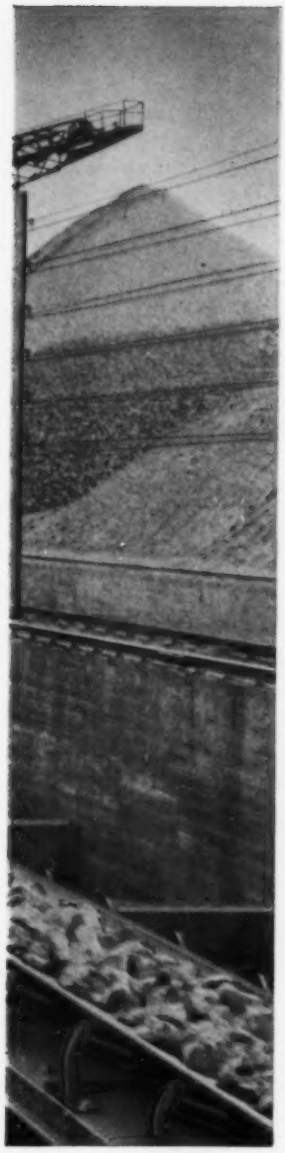
TUNNEL GATE



SWIVELOADERS



ENCLOSED TYPE HOLDBACKS



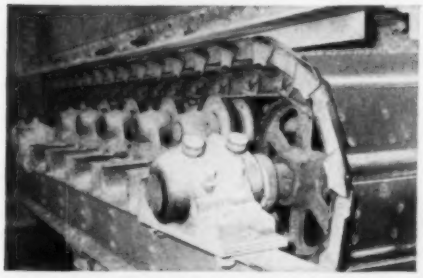
For performance above and beyond the call of normal duty in rock products handling

S-A CONVEYING SYSTEMS

The challenges of production efficiency and economy are renewed with every order for permanent conveying facilities in the rock product industry. Each conveying system calls for an individual engineering effort that will enable the operator to achieve maximum output at the lowest cost. Every operator's handling problem is a little different, the layout unlike any previously confronting the conveying engineer.

STEPHENS-ADAMSON has been making its experience in this field available both at home and abroad for 57 years. Performance-wise, S-A engineered conveying systems have established a reputation for getting the job done under conditions that could exist only in rugged pit and quarry arenas. In fact, the very first sand and gravel conveying system ever built by S-A—nearly fifty years ago—is still in everyday operation.

If you are confronted with the challenge of handling rock tonnages beyond the capabilities of ordinary conveying know-how and equipment, STEPHENS-ADAMSON engineering services are at your disposal. Call your area representative.



36" wide, 14' long AMSCO manganese steel feeder takes quarry stone from a surge bin to scalping screen at Elmhurst-Chicago Stone Co., Elmhurst, Illinois. This type is the most rugged and powerful feeder ever built. This unit has handled millions of tons of rock.

A 5' by 12' triple deck vibrating screen in use by Elmhurst-Chicago Stone Co. is part of an over-all STEPHENS-ADAMSON conveyor system. Noted for accurate sizing and long, maintenance-free service, these S-A units are built for normal and heavy duty.

-ADAMSON

EQUIPMENT

S-A district or main plant offices can supply complete information on any conveyor product, or any phase of bulk material handling. Write or call for bulletins on any conveyor product.

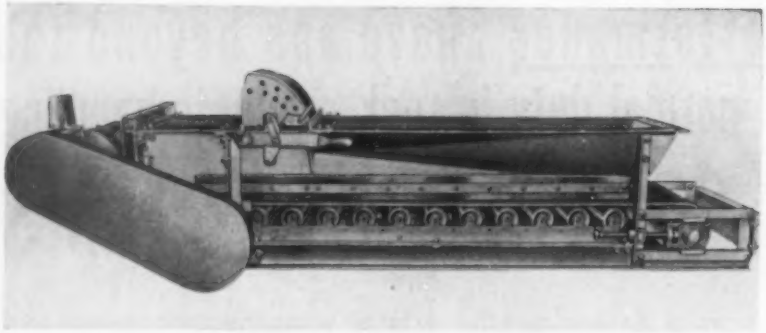
S-A

MFG. CO.

MAIN OFFICE AND PLANT
20 RIDGEWAY AVENUE
AURORA • ILLINOIS

PLANTS LOCATED IN: LOS ANGELES, CALIFORNIA
CLARKSDALE, MISSISSIPPI • BELLEVILLE, ONTARIO

Enter 56 on card, page 97



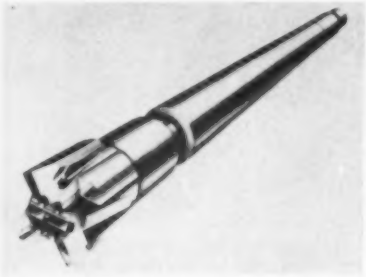
● Barber-Greene's Model F-8 belt feeder is a pre-engineered, packaged unit available in a capacity range from 5 to 550 t.p.h.

Two drive arrangements are available for the Model F-8. Through the use of a gearmotor and a roller chain drive, constant belt speed may be attained, with capacity controlled by a quadrant-type control gate equipped with a fine screw adjustment. As an optional, variable belt speed may be obtained through a variable speed reducer and roller chain arrangement, working in conjunction with a quick-adjusting quadrant gate having control settings in 1 in. increments. This permits adjustment of capacity by means of varying gate opening, by alteration of the belt speed, or by both means.

Manual controls may be mounted on the reducer, or remote controls may be installed at any point in a plant setup. (365)

● The Hi-Vi vibratory feeder, a product of the Eriez Manufacturing Company, has a rugged electro-permanent magnetic drive which requires no rectifier, and needs only to be plugged into an available a.c. line. The vibrating action of the tray produces an accurate flow of material, completely controllable within a range of ounces to tons per hour.

In this application, a combination of infra-red heat lamps and an Eriez Hi-Vi vibratory feeder is used to assist in maintaining rigid quality control standards in processing abrasive materials. As the Eriez feeder supplies a constant, uniform flow of sand from storage bins to screening machinery, the battery of infra-red lamps installed above it eliminates minute mircron surface moisture, thus reducing the surface area of sand particles and minimizing binding in the screens. (366)

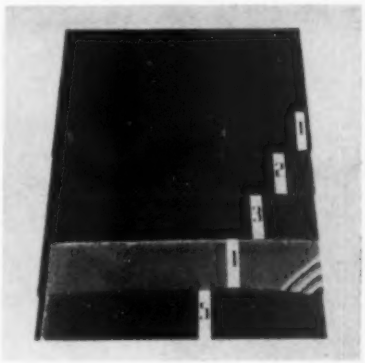


● Schramm, Inc., announces the Rotatool, a percussion tool for fast, economical bottom-hole drilling in hard rock formations.

Developed for use with Schramm Rotadrills, the Rotatool is available in two models. The No. 3875 takes a 4½ in. bit and requires 100 c.f.m. of air at 100 p.s.i. to operate; it is used with the Schramm Pneumatractor mounted Rotadrill. The larger size, No. 5250, takes 6 in. and 6½ in. bits and requires 350 c.f.m. of air to operate. It is ideal for use with Schramm truck and crawler mounted Rotadrills and other rigs that have compressors suitable for 100 p.s.i. operation.

The Rotatool has only three moving parts. It has a heavier hammer, and therefore produces greater fracturing for faster penetration.

A special bit equipped with six carbide tips is designed for longer life with less wear, and can be reground on the job for repeated use. Unrestricted air passages in the tool permit the full capacity of the compressor to pass through the bit to clear the hole of cuttings or water. Additional volume for hole cleaning is gained by lifting the tool off the bottom and blasting with the full capacity of the compressor. (367)



● Design of the Shockmaster, a new double-duty conveyor belt manufactured by the Quaker Rubber Division, H. K. Porter Company, Inc., allows the utilization of both the top and bottom carrying surfaces. When the first carrying side is no longer satisfactory, the belt can be turned over. A medium-weight, extremely flexible belt, Shockmaster has a high impact resistance for use over smaller than usual pulleys on short center hauls.

Shockmaster is made of two- or three-ply heavy cotton-nylon fabric, with a skim coat of rubber between plies. An envelope ply of frictioned, double-skimmed, extra-heavy, open-weave, all-nylon fabric entirely encompasses the core and acts as a cushion. The top and bottom covers are made of an abrasion resistant rubber, 3/32 in. thick.

Illustrated is a cutaway section showing the construction: (1) top cover; (2) nylon envelope ply; (3) double gauge skim coat of rubber; (4) cotton-nylon carcass with a skim coat of rubber between plies; (5) other half of skim coat, nylon envelope, and 3/32 in. cover. (368)

PRAISE FOR A COMPETITOR

Thank You.....W. S. Tyler Company

Six years ago we started this business as manufacturers of wire cloth. Our objective: To specialize in the production of the highest quality aggregate wire screens only. In that short life span, we have gained recognition as a top producer of that product—featuring the use of premium grade "SUPERTOUGH" oil tempered wire.

Last March 20 we suffered a catastrophe that temporarily crippled the major portion of our production facilities. A Lancaster County "onion snow" . . . usually a very light fall . . . turned out to be the wettest, heaviest, 19 inches of snow in local history. It took down trees, telephone and power lines . . . and half our roof!

First hurried estimates were that we would be out of business for 10 to 12 weeks. After a more thorough investigation, however, we discovered that most of our important equipment had suffered very little serious damage. Now it appeared that, with round-the-clock effort and considerable luck, we could be back in full production in about 6 weeks. OUR DECISION WAS TO REBUILD AT ONCE.

In addition to getting our plant back in shape, we had the equally difficult problem of filling orders already on our books. Some of these could be completed by using our stock inventory of piece goods. The balance would have to be made up. The question: Where?

A hurried telephone call was made to The W. S. Tyler Company, Cleveland, Ohio. Our situation was explained, and without the slightest hesitation, Tyler management informed us that their facilities would be at our disposal for as long as needed.

Since May 5th we have been back on full production in our own rebuilt, enlarged plant. Once again our salesmen are hustling for orders, telling the story of Hoyt Wire Screen superiority, and backing it up with actual proof. But at the same time, we're all remembering the fine spirit of the competitor who helped us in our time of disaster.

So we want to say "Thanks" publicly to The W. S. Tyler Company for their generous, unselfish assistance. We will always remember, with warm gratitude, the many times they placed our interests ahead of their own. And without being overly sentimental, it seems to us that as long as one competitor will help another without thought of his own gain, American business can't be as bad as it is sometimes pictured.

Herman G. Hoyt
PRESIDENT

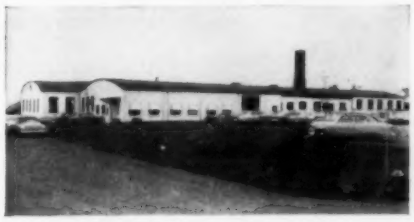
CONFIDENCE THRU INTEGRITY, QUALITY AND SERVICE . BUILDING

HOYT WIRE CLOTH COMPANY

P. O. BOX 1577, LANCASTER, PA. · PHONE EXpress 4-6871

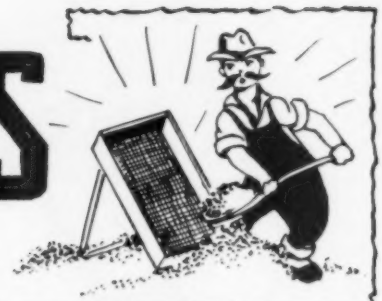
This is the HOYT Plant before the March 19 blizzard

This is the left section of our plant on March 20, after 19 inches of the heaviest snow on record brought the roof crashing down



By May 5 we were back in production again, with a new roof, rebuilt equipment and 1,350 square feet of additional floor space

SCREENINGS



By RAY L. SMITH JR.

IN DECEMBER a conference on safety measures for small boats was held in Washington.

Just what action was taken we have not read, but anything which will draw attention to the growing hazard of uncontrolled power boats should do some good.

There is something about an engine, car or boat, which gets into the blood of otherwise meek and law-abiding citizens. If it were only their own lives they were risking the problem would be minimized, but thousands of innocent bystanders are endangered every week-end by children and so-called "adults" who do not respect either horsepower or water in motion.

They ignore small craft warnings and venture forth with outboards in water too dangerous for ocean-going yachts. They take a delight in creating a wash that may swamp small boats. They refuse to give sail boats the right of way. In fact, for a thrill, they break all rules of the waterways, and unless caught cold by the Coast Guard they get away with it.

Boating—and, of course, the fishing which usually goes with it—used to be a wonderful way "to get away from it all." But with 25 million boats in use, there isn't enough inland water any more or anywhere in which amateur sailors can do as they please without regard for the rights and safety of others.

Potpourri and Succotash

My wife and her friends take their bridge club very seriously, so last Friday, my wife scurried around getting up fancy refreshments to serve the club during their session at our house. In fact, my wife worried so much about the fancy cakes and coffee, she completely forgot to get a prize for the winner at bridge.

Just before the guests arrived, she climbed up to the attic and grabbed the first thing she saw that looked at all decent for a prize—a sort of silver bon-bon dish. She frantically cleaned and wrapped it, finishing just in the nick of time.

The afternoon went off beautifully—until the presentation of the bridge prize. The prize-winner opened the present, then stormed out of the house in a rage. It turned out that the prize wasn't a bon-bon dish, but a trophy. Engraved on it was the legend: "First Prize Boxer Bitch."

A little boy wanted $100 so he decided to pray for it since everyone said he should. He prayed every night for two weeks—still no $100; so he decided to write God a letter. The postal man received it but didn't know where to send it. He forwarded it to the President of the United States. The President read the letter and told his secretary to send the boy $5.00. When the boy received the money he was delighted and wrote God another letter thanking Him for His prompt reply.

"I noticed that you routed your letter through Washington. As usual, they deducted 95%."

Colonel Cavendish had been sunk in a chair at his club for days and looking so gloomy that another member finally came up to find out the trouble.

"It's the wife," said the Colonel sorrowfully. "She says she's going to leave me if I don't stop running around with women."

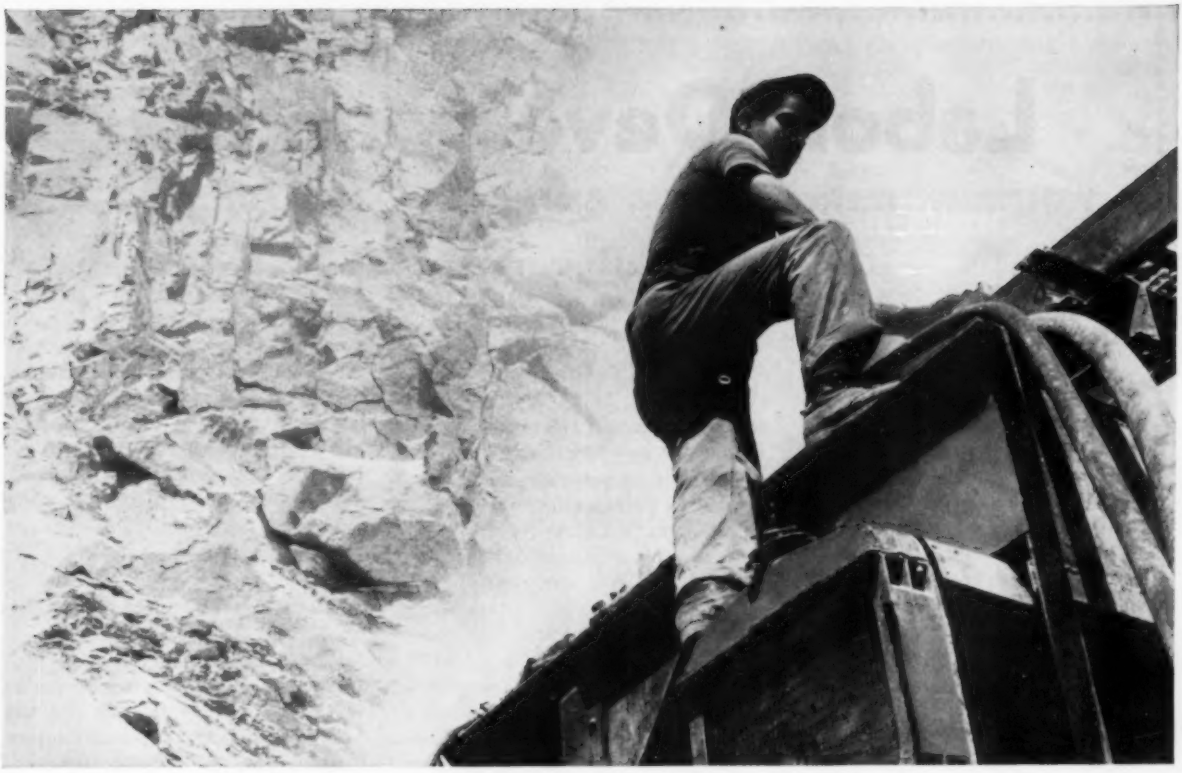
"A pity," consoled his friend.

"Righto. I'm going to miss her."

The little brat rode the hobby horse in the toy department for hours. His doting parents pleaded, offered bribes, but to no avail. Their darling wouldn't budge. Finally, jolly ole Santa walked over to the child and whispered into his ear. The kid was off in a jiffy.

On the way home, the curious mother asked, "What did Santa say to you, sweetie."

The little monster replied, "He said, 'Get the devil off that horse or I'll break your little neck' ".



ROWE KEEPS CLIMBING

with Cities Service Products

For 50 Years, Rowe Contracting Company of Malden, Mass., has been an ever-growing name in the crushed stone industry. And for the past 25 of those years, Rowe has relied on Cities Service fuels and lubricants every step of the way.

Rowe's business is twofold: Working the oldest active quarry in the Boston area, and operation of a drilling-blasting service throughout New England. Here's a sample of the part Cities Service plays in both phases:

For Truck Engines, Cities Service C-300 Motor Oil has given consistently outstanding performance throughout years of rugged New England winters. Blended from high quality base stocks plus an extremely effective additive combination, this versatile oil keeps carbon, sludge, and varnish to an absolute minimum. Extends period between overhauls.

For General Lubrication, multi-purpose Trojan H-2 Grease has proved a real worksaver and timesaver. This new grease greatly simplifies inventory—is ideal for chassis, wheel bearings, water pumps and other uses. And it actually takes *less* of this superior lubricant to do an effective job!

For Jack-Hammers, both at the quarry and in Rowe's drilling-blasting service, Cities Service Neptune 2-Z provides the exceptional oiliness and easy flow needed for trouble-free operation. Rowe's hammers keep biting away—regardless of weather.

These are just a few of the ways that Cities Service works for Rowe . . . and just a hint of the way that Cities Service can work for *you*. Get the full story from a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

Rowe's 40 Trucks are kept on the go with Cities Service C-300 and C-800 Motor Oils. Rowe also operates drilling-blasting service throughout New England.

Widely known throughout the industry, Warren Rowe is Vice President of the National Crushed Stone Association. A man who knows his business and his lubricants.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

Labor Developments

By S. HERBERT UNTERBERGER

S. Herbert Unterberger and Company
Economists-Consultants on Labor and Industrial Relations
Washington, D. C.-Philadelphia, Pa.

IN LABOR relations matters new regulations and new legislation are rarely surprising. For example, practically every provision of the Taft-Hartley Act had been proposed, debated, and voted on, frequently more than once, in various sessions of Congress preceding the one in which that comprehensive legislation finally was enacted. To foretell the future, therefore, it is rarely necessary to do more than review what is currently being proposed.

Wage Standards on Local Construction

One of the matters receiving increasing attention is that of wage standards to be applied to local construction which is financed in part by federal funds. This is a direct consequence of the increasing use of the technique of cost sharing among federal, state, and local governments for many public works. Two bills were recently passed in the Senate which include provisions for extending federal regulation of wage standards to such shared projects.

The first contains the provision that employees of contractors or sub-contractors on projects assisted under the federal public facility loan program designed to aid state and local governments in financing local public works must be paid rates not less than the prevailing wage rates for the same kinds of work in the immediate locality where the work is performed, as determined by the Secretary of Labor in accordance with the Davis-Bacon Act; and further, that such employees must be paid one and one-half times the regular rate for work in excess of 40 hours a week. This provision would extend not only the benefits of the Federal Wage and Hour Law but also those of the Davis-Bacon Act to such local construction workers.

The second bill, also passed by the Senate, would amend the Davis-Bacon Act by (1) extending the application of its prevailing wage provisions to public works financed in whole or in part from federal funds or as a result of guarantees or insurance of a federal agency; (2) provide for overtime pay at not less than one and one-half times the basic rate for all hours worked in excess of 8 per day or 40 per week or on more than 5 consecutive days or on Saturdays, Sundays, or holidays; and (3) provide for conformity with prevailing practices with respect to remuneration other than cash, reimbursements for expenses, or any payments which are not wages within the meaning of the Act. This proposed legislation would also strengthen the enforcement provisions of the Davis-Bacon Act and would transfer responsibility for enforcement to the Secretary of Labor.

It would extend the subject matter of the Davis-Bacon Act well beyond its present boundary. Currently, this law concerns itself only with the establishment of the prevailing rates of pay for particular kinds of work and the requirement that payments must be made currently. The proposal would require overtime pay under a very rigid set of conditions, namely, for all hours worked in excess of 40 per week, for all hours worked in excess of 8 per day, for all hours worked on more than 5 consecutive days, presumably within a week, and for all hours worked on Saturdays, Sundays, and holidays. It is not entirely clear from the bill precisely what is meant by conformity with prevailing practices, with respect to remuneration other than cash, and how that would be worked out and enforced.

While there is some question whether such extensions of the application of the Davis-Bacon Act will pass this session of Congress, there is no doubt that there is much pressure and some logic in favor of the extension of at least the requirement that prevailing wages be paid not only on direct federal projects but on all projects in which the Federal Government has a hand. This should be a matter of great interest to firms which are involved with such construction projects.

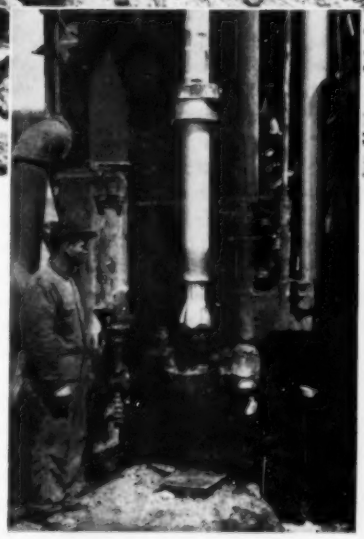
Salary Tests for White Collar Exemptions

Much closer at hand than proposed legislation are the proposals recently made for revising the test under which white collar employees may be exempt from the overtime provisions of the Wage and Hour law.

Up to now, employees who qualified as executives were exempt from such overtime provisions if they were paid no less than $55 a week, and employees who qualified either as administrative or professional were similarly exempted if they were paid no less than $75 a week. Virtually all employees who were paid $100 a week or more and who had as their primary duty the performance of work which is characteristic of employment in an executive, administrative, or professional capacity were deemed to meet all the requirements for exemption.

Recently, the Administrator of the Wage and Hour and Public Contract Division, U. S. Department of Labor, announced that he planned to amend these regulations to raise the minimum salary levels for exempting employees to $80, $95, and $125 a week, respectively.

Under the rules applied in such matters, the public has to be allowed 30 days in which to present views and arguments related to these proposed changes. Conceivably, there could be some modification of these figures, but that is quite unlikely. Accordingly, it is important that every employer who is now taking



"DOWN THE HOLE DRILL"

Boosts Net Tonnage 200%

Churn drill—53 net tons per hr.
Piston drill—152 net tons per hr.
Down-the-hole drill—464 net tons per hr.

A large Eastern trap rock quarry operated for years with churn drills drilling 6 inch holes on a 16′ x 18′ spacing at the rate of 2 feet per hour. Purchasing a Quarrymaster using a QD-8 piston drill and 6″ Carset bits, net tonnage per hour increased from 53 to 152 tons.

Last summer another Quarrymaster employing an Ingersoll-Rand DHD-400 down-the-hole drill using 7″ bits was put in operation. Overall drilling speed even with the larger bit was doubled and hole spacing increased from 16′ x 18′ to 20′ x 22′! Results – 464 net tons per hour.

All drilling was in a hard massive trap rock economically undrillable by any other big hole drilling method. Ask your I-R man for complete information and other cost saving examples of Quarrymaster performance.

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advantage of these exemptions should review each of the employees affected to make certain that he will continue to be exempted under the revised regulations. When those regulations are promulgated, they are likely to go into effect rather quickly.

To aid in making this review, the following tests may be useful:

For an employee to qualify as an *executive* under these regulations, he must (1) manage an enterprise, or department or subdivision thereof, (2) customarily and regularly direct the work of two or more other employees, (3) have the authority to hire and fire or suggest changes in status of other employees, (4) not spend more than 20 percent of his weekly hours on non-executive work; and (5) under the proposed revision, his salary must be at least $80 a week.

If his salary is $125 a week or more, he will be regarded as an executive if he meets only the requirements of (1) and (2) above.

To qualify as an *administrative* employee, (1) he must perform non-manual field work related to management policies or general business operations of his employer or employer's customers; (2) he must regularly and directly assist a proprietor, an executive or an administrative employee, or he must work under only general supervision along specialized or technical lines, requiring special training, experience or knowledge, or he must execute special assignments and tasks under only general supervision; (3) he must customarily and regularly exercise discretion and independent judgments; (4) he must not spend more than 20 percent of his weekly hours on non-administrative work; and (5) under the proposed revision, his salary must be at least $95 a week. If his salary is $125 a week or more, he will be regarded as an administrative employee if he meets only the requirements of (1) and (2) and (3) above.

To qualify as a *professional* employee, (1) he must perform work requiring scientific or specialized study, or perform original and creative work in a recognized artistic endeavor depending primarily on his invention, imagination, or talent; (2) he must perform work predominantly intellectual and varied; (3) he must consistently exercise discretion and judgment; (4) he must not spend more than 20 percent of his weekly hours on non-professional work; and (5) under the proposed revision, his salary must be at least $95 a week. If his salary is $125 a week or more, he will be regarded as a professional employee if he meets only the requirements of (1) and he consistently exercises discretion and judgment with respect to scientific or specialized work, but not with respect to artistic endeavors.

Washington News

(*From page* 12)

not really interested in helping the unemployed—this, despite the fact that it was his idea in the first place.

The strategy appears to be working. As a matter of fact, it is almost foolproof. The party which is now in control of the legislative but not the executive branch of the government is in the admirable position—from the political strategy point of view—of being able to take irresponsible actions, which, nevertheless, have popular appeal, without having to face the grim reality of answering to the public about their outcome. Thus, more of the same tactics can be expected.

The principal remaining issue to be joined is that of tax relief. Here, again, the Democrats' position appears to be a very simple one. It is legislation to cut taxes for the largest number of people. In vigorously pressing for this, while the Administration appears to be dragging its heels, the same strategy is again being employed. No matter how the issue is finally resolved, the accusation will remain, and it will be repeated, at least from now to November, that the measures taken were not only too little and too late, but also in behalf of the wrong groups.

In Washington, it is beginning to look as though the pressure for tax relief as an anti-recession measure were becoming irresistible. The discussion as to whether there should be a tax cut is being supplanted by a debate over the single issue of what form the cut should take. Even the question of when the cut should take place seems to have been decided by general acquiescence to doing so as soon as possible.

The methods proposed for tax relief are, of course, extremely diverse. They range all the way from increasing individual exemptions to limiting the measure to a reduction in a few excise taxes; the most frequently mentioned is a reduced tax on automobiles.

The time is approaching when a proposal sponsored by the responsible group is likely to be listened to most carefully. The Committee for Economic Development, an organization supported by voluntary contributions from business and industry, which has become the spokesman for so-called enlightened business interests, may again be the voice which is heeded.

This group's recent proposal for a large temporary tax cut looks as though it has a reasonable chance of being adopted. According to that proposal, the purpose of the tax cut is to help lift us out of the recession, not to change the burden of taxation or to reform the tax structure. Consequently, its proponents say, it should be neutral with respect to the distribution of the tax burden, and they therefore recommend a flat percentage reduction in the income tax bills of individuals.

In pointing out that the size of the tax cut should be commensurate with the size of the problem, they conclude that a cut in the neighborhood of 20 percent would be about right to solve the problem, but not so great as to create an inflationary threat. However, the most important aspect of their proposal is that it should be *temporary*. They point out that, depending on how rapidly the recovery is achieved, the cut may be required for only a matter of months. Thus, if the reduction were to run for only six months, the net effect would only be a 10 percent tax cut.

This is clearly a shot-in-the-arm approach. While it is, no doubt, recommended without reference to its political implications, it is being regarded favorably by politicians for the rather obvious reason that the cut would probably be in effect when the votes are counted in November.

The newly-incorporated Dry Mix Materials Company plans to build a plant to crush, grind, screen, and grade materials for the parent firm, Dry Mix Products Company, Roseville, Calif.

Do you need Responsibility Accounting in your plant?

THE real measure of just how effective a manufacturing company can function lies in the actions and attitudes of its supervisory employees. If budgets and policy decisions are to be carried out, ultimate fulfillment requires the co-operation and understanding of men on the production lines, as well as in the home office.

Because experience has taught its top management the validity of this fact, a highly effective plan has been developed in the Riverside Cement Company, a Division of American Cement Corporation, Los Angeles, Calif., to distribute budgetary and cost accounting responsibility throughout the supervisory level. The results have been more than satisfactory, providing a tribute to the determination which enabled Riverside management to overcome a number of problems along the way. Among these was one which can test the ingenuity of the best brains in employee relations work, one which poses a challenge to the continuing success of the Riverside plan—effective communication.

Everyone, from a group foreman in a rock quarry to top management, is accountable for cost responsibilities. As has been proved so often, any company will function much more efficiently if all its various components — production, marketing, etc.—are realistically related to financial considerations. Acting on this concept, Riverside's cost accounting records have become vehicles of management communication. Every employee with supervisory responsibilities can expect, every month, a complete operating report covering all funds allotted to and spent by his operation. This report exemplifies the concept of *responsibility accounting*.

This tight control helps run one of the largest cement manufacturing companies in the southern California marketing region. It involves plant facilities with an annual capacity of 8,500,000 bbl., providing much of the cement going into the building and construction work which is pacing the heavy growth of this area. The firm's marketing area takes in parts of Nevada, Arizona, and Old Mexico, in addition to southern California.

The main office is in Los Angeles; manufacturing and distribution facilities cover hundreds of miles, creating a dispersement factor which must have tight control to prevent costly waste. Riverside also uses heavy industrial and production equipment; and with such machinery, cost figures are vital to determine whether proper performance is being obtained, which machines should be used in different processes, etc.

These factors led to *responsibility accounting*, a company program designed to accomplish several objectives. First, real control of costs and budgets must be linked with effective on-the-spot supervision. When a piece of machinery breaks down, the supervisor on the scene must act effectively. He can do so only if he fully understands all the manpower, material, and cost elements involved.

Riverside Cement Company's accounting setup accomplishes

- effective communication
- on-the-spot supervision
- indoctrination of supervisory personnel
- aid in employee training
- accessible, up-to-date records
- maintenance of an accurate, economical cost accounting manual

Changes in the standard accounting practices manual can now be made in seconds by typing the single line on a Remington Rand Flexoprint card, then inserting this single card in its proper space on the holding panel. Flexoprint eliminates the need for retyping and proofreading the entire page for each correction.

"Type" for Riverside Cement Company's standard accounting practices manual is kept in ready-to-use form in a convenient, accessible file.

He must have this knowledge and understanding if he is to make an intelligent decision on what to do, relating financial responsibility to his specific operation.

In addition, this type of program is invaluable in the indoctrination of supervisory employees. It brings management problems to their attention, and gives them a better understanding of the management viewpoint.

Finally, and perhaps equally important, this concept is fundamental in helping Riverside Cement management to train a better calibre of employee. Through the *responsibility accounting* plan, accounting cost centers were created to cover each division of supervisory responsibility. As might well be expected, practices and designations had to be established to be used uniformly throughout the system. Some 7,000 to 10,000 items had to be coded in such a manner that they have a uniform meaning and are understandable to all responsible parties.

In short, Riverside Cement had to make up a complete *Card Accounting Standard Practice Manual,* with all that this implies, and make copies available to all interested persons. Approximately 50 copies of the manual have been issued throughout the company. In effect, Riverside management found that the development of this plan was no more than a first step; obviously, to be effective, it had to be communicated regularly to its employees.

This meant the production and maintenance of 115-page volumes. It also meant making essential changes every month, so that the very latest information would get to the proper persons. Without such data in the supervisor's hands, the plan could not function properly.

The first manual was produced early in 1956. It was typewritten on masters, which were saved with the intention of being used again as needed. Just one change on a page, however, meant retyping the entire page. This, in turn, meant careful proofreading of the page. When printed, the new page was issued to the field as a replacement. The system was cumbersome, and it required a disproportionate amount of

(*Continued on page* 79)

Flexoprint panels are photographed and then quickly duplicated on Riverside's reproducing equipment.

Enter 67 on card, page 97 ➔

CAT LOWBOWL SCRAPERS lower the cost of stripping overburden!

Pushloaded by a husky D8, this Cat DW21-No. 470 LOWBOWL Scraper is one of three used by the C. A. Powley Co. in its gravel pit at Valley View, Illinois. The DW21's modern, heavy-duty Turbocharged Caterpillar Engine packs power aplenty for hauling heaped loads fast. The No. 470 LOWBOWL Scraper has a rating of 18 cu. yd. struck, 25 heaped.

THAT'S why outfits like the C. A. Powley Co. use Cat LOWBOWL Scrapers for stripping overburden. Here you see one of three DW21-No. 470 units used in the company's gravel pit at Valley View, Illinois. The overburden varies in depth from 8 to 9 feet. Each DW21-No. 470 Scraper averages 8 trips per hour on 2-mile round-trip hauls. Working with them in the pit are D7 and D8 Tractors which bulldoze material into the loading area, and a No. 977 Traxcavator. The D8 also pushloads the DW21s.

One big reason for the DW21-No. 470 Scraper's high productive capacity is its LOWBOWL design. Caterpillar originated and perfected LOWBOWL design. It provides less loading resistance clear to the end of the bowl. It results in faster loading cycles. No guessing about this—the figures are on record at your Caterpillar Dealer!

These figures will give you a good idea how Cat DW21-No. 470 LOWBOWL Scrapers can lower your costs of stripping overburden. Want to see them? Your Caterpillar Dealer, a source of reliable service and information, will be glad to show them to you. Want a demonstration? He'll arrange one on your job, any time you say!

Caterpillar Tractor Co., Peoria, Ill., U. S. A.

CATERPILLAR

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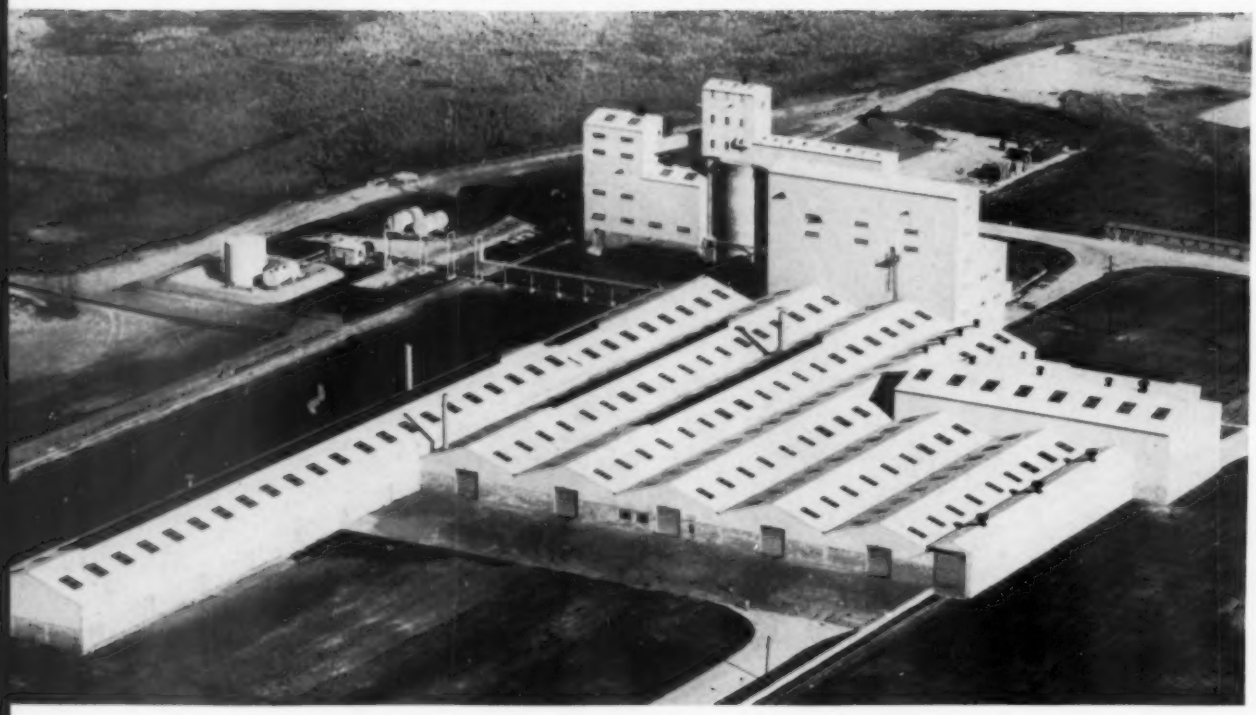
STRIP OVERBURDEN AT LOWER COST PER YARD WITH LOWBOWL SCRAPERS



An aerial view of the new basic refractories plant at Hammond, Ind.—the fifth built by Harbison-Walker in the last decade.

New Basic Refractories Plant

Harbison-Walker's latest unit in 10-year program

THE latest Harbison-Walker addition to refractory production capacity is an efficient modern plant for the manufacture of basic refractories. Chicago's growing steel center needed basic refractories produced there to speed its development, and the new Hammond, Ind., plant will help to meet that need.

Imported chrome, nodulized dead-burned magnesite from Harbison-Walker's new Ludington, Mich., facility, and certain other basic raw materials are used in making chemically-bonded and hard fired brick of various combinations of chrome and magnesite which resist basic slags in metallurgical furnaces, and thus are labeled "basic refractories." These refractories are also being utilized for very high temperature service in recently developed applications.

The Hammond plant site has many favorable features. It can serve industry in Chicago and extensive Mid-West areas through rail, truck, or water shipments. Located on the Chicago, South Shore and South Bend Railway, within limits of the Chicago switching area, it is also on a major district artery adjacent to the Interstate Toll Road System, and within a short distance of the Interstate Freeway. With frontage on the Grand Calumet River, the plant is advantageously located for water transportation,

particularly with the impending development of the Great Lakes-St. Lawrence Seaway. The site will also accommodate further expansion.

The improvements and new developments incorporated in the Hammond plant reflect the experience of the company's engineering department, which handled the design and engineering, as well as the supervision of construction. Consolidated Engineering Company, Inc., Baltimore, Md., served as general contractor. Construction was started in May, 1956, and the facility has been producing basic refractories since late in 1957. It is the fifth basic refractory plant built by Harbison-Walker in the last decade.

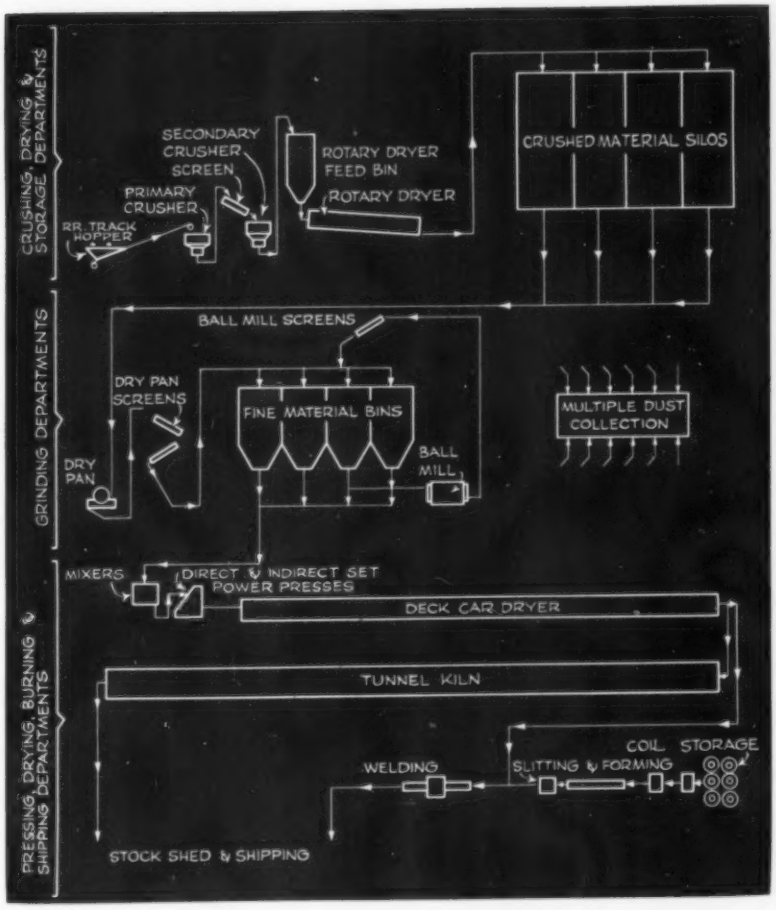
Chrome ore is received principally from the Philippines and South Africa. Dead-burned magnesite is available from plants at Chewelah, Wash., and Cape May, N. J., as well as from the newly built plant at Ludington, Mich. At the latter facility Harbison-Walker produces a periclase from high-purity magnesium hydroxide in a high-temperature rotary kiln operation.

The materials are unloaded from the railroad cars at Hammond into a track hopper and are handled through a system of conveyors, primary and secondary crushers, and rotary dryers as required. Material storage is provided in four 1,500-ton concrete silos.

Materials are drawn from the silos for grinding by means of adjustable constant-weight feeders for transfer to dry-pans for grinding. The dry-pan product, in turn, is split into the several fractions by electrically-vibrated screens, and the sized material is then distributed to the various ground material bins. A fraction of this material is fed to a ball mill by means of a constant-weight feeder for fine grinding.

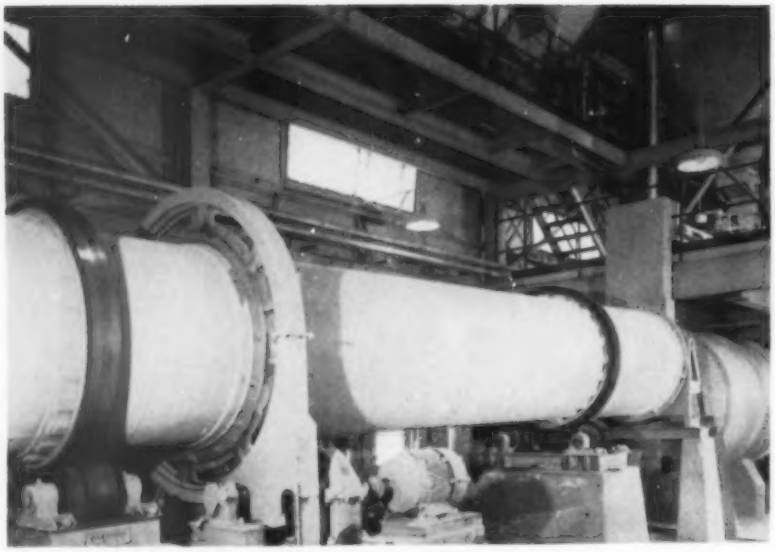
Parallel lines of the equipment described have been installed so that the chrome ore and magnesite may be handled separately to the bins, thus avoiding any possible contamination. The dry-pans, ball mills, and material-handling equipment are totally enclosed and connected to bag-type dust collectors. Here also, separate collectors have been provided to maintain the complete separation of the two materials.

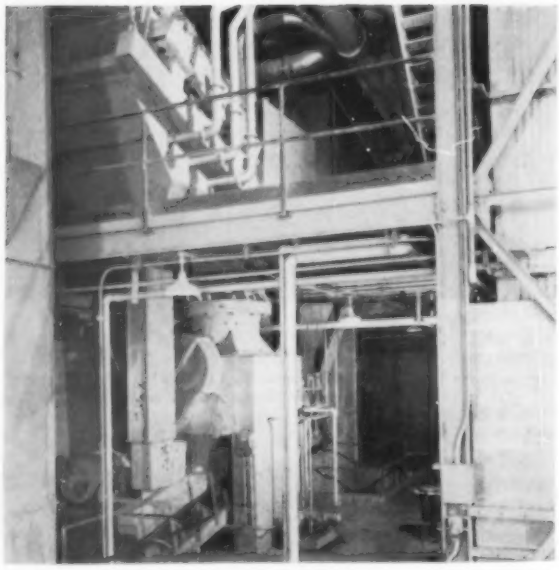
The ground material bins have been grouped for quick and efficient



Above: Flow diagram of Harbison-Walker's Hammond plant, opened last year.

Below: These four 1,500-ton silos provide storage for incoming raw materials.

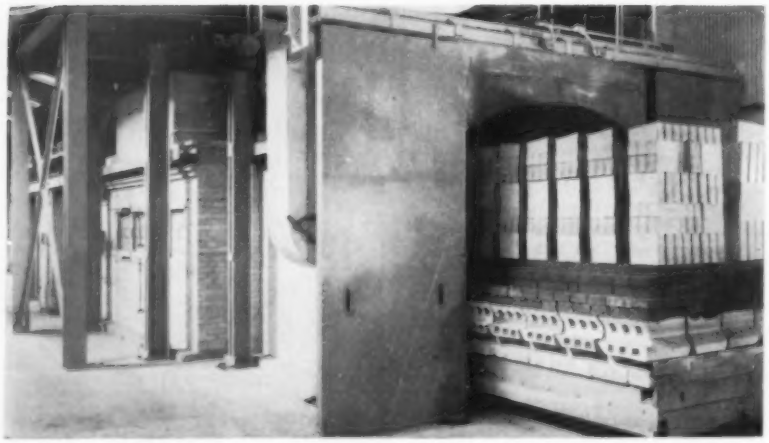




Above: The rotary drier for removing moisture from the feed.

Left: As one factor in dust control, the grinding equipment is totally enclosed.

Below: A kiln car loaded with various products entering a tunnel kiln.



batching. Weigh hoppers with weight printing and coding devices are suspended from a pair of monorails, and the materials are withdrawn from the bins into these weigh hoppers by means of quick cut-off gates for the coarser materials, and electrically operated rotary valves and screw conveyors for the finer fractions. The system is completely enclosed for control of dust. A batch drawn into one of the weigh hoppers is transported to discharge into one of three 30-cu. ft. mixers. From the latter, the mixed material is discharged into tipping-type hoppers which are removed from the mixers by lift truck for transport to any of the power or impact presses.

Some of the presses have been arranged for direct setting of the pressed brick by the press operator on a tunnel kiln car. The remainder of the presses are arranged for setting on dryer cars; and the first group of presses can also be used to set on dryer cars by placing portable platforms at these presses. Normally, all fired products will be set directly on tunnel kiln cars, while Metalkase and other chemically-bonded products will be set on dryer cars.

The loaded dryer cars are transported to the dryer entrance by lift truck and placed on one of the six tracks. Trains of cars in the dryer are pushed through hydraulically in accordance with carefully predetermined schedules. The dryer is supplied with hot air by a combustion unit on top of the dryer; and a system of fans and ducts is arranged to insure uniform movement of air of the proper temperature throughout the complete cross-section at all points from entrance to exit. A unique feature of this dryer is that the brick emerge from the dryer at or near room temperature.

Coil stock steel to be used for the cases on Metalkase brick is received into the plant by rail or truck and unloaded by a 20-ton overhead bridge crane. As required, the coils are precision-slit to exact widths by the most modern equipment. These slit coils are used as the feed for the several lines of case-forming units.

The dried and cooled brick are brought to the welding area by lift truck, as are the fabricated cases.

(*Continued on page 76*)

Pennsylvania Agstone Producers Review Industry Activities

MEMBERS of the agricultural limestone division of the Pennsylvania Stone Producers Association held their annual business and open meetings on March 27, at the Hotel Penn-Harris, Harrisburg, Pa.

Election of new officers was among the first items on the agenda of the business session. The newly-elected officers are: chairman — Fred E. Roberts, Evans-Roberts, Inc., Norristown; vice-chairman — Dorr Stock Jr., Faylor Lime & Stone Co., Winfield; treasurer — H. M. Binkley, Binkley & Ober, Inc., East Petersburg; and secretary — H. H. Wagner (also general manager of the stone producers group).

New board members for the eastern section are Walter Hamme, National Gypsum Co., York; and H. H. Snyder, Eastern Lime Corp., Kutztown. Central section members are W. O. Faylor, Faylor Lime & Stone, Windfield; and Henry Hunsberger, Fry Coal & Stone Co., Mercersburg. Robert Hammett, The Carbon Limestone Co., Lowellville, Ohio, and Elmer A. Snyder, Allegheny Mineral Corp., Cowansville, were named from the western section.

Among the speakers for the open meeting were ACP program specialists, extension agronomists, and faculty members of Penn State University. Mark Shuman, program specialist, discussed the immediate future of the ACP program, and noted that Pennsylvania was allocated slightly over $5,000,000 of the $250,000,000 total ACP appropriation for 1958. It was pointed out that only $125,000,000 has been requested for the total program of the coming fiscal period.

Part of the 1957 funds were expended in the purchase of approximately 700,000 tons of agstone materials that were applied on 25,000 farms.

Ray Connolly, program specialist, reported that more than 37,000 acres are involved in the conservation reserve of the soil bank program for periods of 3, 5, and 10 years. Most of that acreage has been limed and seeded.

The deputy secretary of the state department of agriculture, Leland Bull, stated that the conservation program shows a rapid growth throughout the state. He remarked that water conservation, as well as control of surface and deep water, is due for closer attention in legislative areas.

In discussing the Pennsylvania lime law, W. Wayne Hinish, extension agronomist, pointed out that this act, first passed in 1915, was amended in 1933 but has not been changed since the latter year. Several members of the liming materials industry have been canvassed for suggestions on amendments to that law, but to date no specific steps have been established.

Mr. Hinish also noted that university faculty members and other interested persons have hopes that a relatively simple chemical method can be used for evaluating different types of lime; and that this evaluation can be placed either on the containers in which the material is delivered, or on sales slips, so that the purchaser can readily recognize the quality of the lime being acquired. Presently, it was stated, farmers have to rely to a great extent on the price as the gauge for determining where to buy liming materials.

Various methods of evaluating agricultural limestone was the subject of a paper presented by A. S. Hunter, professor of soils, Penn State University. Mr. Hunter's paper reviewed research which he has carried out over the years since 1916. Interestingly, it was indicated that the use of ground limestone as a liming material gained first prominence, in this country around 1910 to 1915.

Among the main points brought out by the speaker was the fact that the agricultural value of ground agstone depends upon how much acid it can neutralize, and upon the speed of reactivity. While the neutralizing power depends on the purity—calcium oxide or calcium carbonate equivalent—the speed of reactivity depends mainly upon the degree of fineness, although also on the relative amounts of calcium and magnesium carbonates present and the degree of soil acidity.

The relative amounts of calcium and magnesium carbonates in limestone, Mr. Hunter stated, do not have much effect upon the speed of reaction if they are finely ground. If they are coarsely ground, he added, dolomitic stone reacts more slowly than calcitic.

Studies have also shown that agstone of 80 mesh or finer is about as effective as burned or hydrate lime during the first year after application.

Sales, Earnings Set Records At G. & W. H. Corson in 1957

Net sales and earnings of G. & W. H. Corson, Inc., Plymouth Meeting, Pa., for the year 1957 were the largest in the history of the company.

Consolidated net sales for the year ended December 31, 1957, reached a new high at $8,093,142, up from $7,737,382 in 1956. Net income for the year, after all charges and taxes, reached a record $694,719, equivalent to $1.49 per share. This compared with the 1956 net income of $596,505, equivalent to $1.28 per share.

Capital expenditures in 1957 amounted to $770,427, compared with $916,663 in 1956, which was then an all-time high.

Corson officials reported that several expansion projects of the firm's facilities were completed last year.

$2,000,000 Terminal Planned By Ideal at Vancouver, Wash.

Ideal Cement Company, Denver, Colo., has acquired a tract of land on the Columbia River at Vancouver, Wash., for the construction of a cement-storage distribution terminal.

Engineering studies are now under way for the building of facilities which are expected to cost more than $2,000,000. When completed, the terminal on the deep-water site will enable Ideal to serve growing areas of the Pacific Northwest by ship, barge, rail, and truck.

self sufficiency basic goal as

Producer Diversifies Operation

By BUREN C. HEROD

ANOTHER ON THE SPOT REPORT

THE fact that the larger producers in the pit-and-quarry industries and major consumers of their aggregates hold no corner on progressive planning and operations is often illuminated by the records of smaller operators. Take the instance of the Willson Brothers organization at Rives Junction, Mich.

Founded as a concrete masonry producer 18 years ago, this company has undergone a program of diversification that would be considered noteworthy even in much larger firms. The latest phase in that program is the development of a 180-t.p.h. sand and gravel producing facility—an operation that was established to make the company 100 percent self-sufficient in aggregate requirements. The capacity also allows commercial disposition of a part of the output.

Diversification preceding the addition of the new gravel operation included the erection of a ready-mixed concrete plant about four

A general view of Willson Brothers plant site and the part of the pit from which the company now meets all of its own aggregate requirements.

Enter 73 on card, page 97 ➔

This 110-B shovel joined the Houdaille equipment "team" in December, 1956. Working a 10-hr. shift five days a week, it helps keep production levels high.

The dependable service of this 110-B shovel — in operation over three years at the Houdaille quarry — led the company to add the second 110-B shown above. These shovels load rock at the base of a 200-ft. highwall.

110-Bs Move Trap Rock Fast At Houdaille Quarry

Dependable Bucyrus-Erie electric shovels keep haul units on the go at this trap rock quarry near Bound Brook, N.J. Owner of the enterprise is Houdaille Construction Materials, Inc., Morristown. By placing these 4½-yd. 110-Bs in operation and revamping plant facilities, Houdaille has substantially increased plant production capacity at Bound Brook.

The first 110-B was put into operation during an overall plant modernization in 1954. So highly satisfactory was the performance of that shovel that a second 110-B was added to the production fleet. Working in a 500 x 1,600-ft. cut against a 140- to 200-ft. highwall of trap rock, these shovels maintain an outstanding pace.

Their heavy duty construction qualifies them for really tough work . . . keeps them on the job day after day, year after year. Their exclusive two-section boom, tubular dipper handle, and twin dual hoist provide great strength but reduce power-consuming deadweight. The result: less strain on machinery, faster work cycles.

Let us tell you more about the proved dependability and big output of Bucyrus-Erie electric shovels. Write for full information. Bucyrus-Erie Company, South Milwaukee, Wis.

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A Familiar Sign . . . BUCYRUS ERIE *. . . at Scenes of Progress*

years ago, and about three years before that the establishment of a building material (lumber, masonry supplies, etc.) business. With these varied activities, this progressive company has expanded its markets to include an area that falls within a 40-mile radius of Rives Junction.

Although the site of the current pit operations had been opened about 4 years ago, it was not until December, 1956, that the present plant was placed in operation. Prior to that time production consisted mainly of sand; and the coarse aggregates required for the block plant were purchased. However, difficulty in obtaining suitable materials for the latter from other sources led to the decision to build a facility with which the company could produce all its own requirements.

Feed to the washing plant, right background, is maintained at the maximum of 1½ in. from the scalper and jaw crusher, left. The short bucket elevator closes the scalping-crushing circuit.

The first washing screen, upper left, supplies minus ⅜- or minus ¼-in. material to the fine material screw for dewatering of concrete masonry aggregate or concrete sand.

Designed by Fred Oxbrough, son-in-law of R. E. "Bob" Willson, president, the plant was originally set up as a 150-t.p.h. operation. With a few minor changes, it was adjusted to handle a feed in excess of 180 t.p.h., and in normal production it makes four basic fractions.

The pit and plant site are near the center of a 40-acre tract a few miles southwest of Rives Junction. As is evident in the accompanying photographs, only a nominal amount of material larger than 2 to 3 in. is found in the deposit, which was opened into the side of a hill.

Digging is handled by a Lima diesel dragline equipped with a ¾-cu. yd. Hendrix bucket. The dragline discharges on a bar grizzly with 10-in. spacing mounted over an 18-cu. yd. field hopper. An 18-in. Pioneer apron feeder below the hopper transfers the material to an 18-in. by 40-ft. Pioneer conveyor. Future pit advance will be accommodated by the addition of field conveyors from this point.

The present No. 1 belt transports the bank-run material at 360 f.p.m. to the scalper—a 3- by 6-ft. single-deck Simplicity screen fitted with 1½-in. square opening screencloth. Oversize is chuted to a 16 by 24 Gruendler jaw crusher, where it is reduced through a 1½-in. setting. Crusher discharge is raised in a short Chain Belt open bucket elevator to a chute leading to the scalper.

Throughs from the scalper are received on a 24-in. by 130-ft. inclined belt conveyor and transported from the pit to the washing plant, where they are discharged on a 5- by 12-ft. double-deck Pioneer washing screen. Top deck screencloth has ¾-in. openings, while the lower deck is fitted with ¼- or ⅜-in.

opening screencloth, depending on whether the lower deck passing fraction will be used in ready-mixed concrete or as concrete masonry aggregate.

In either case, the smaller fractions are chuted to a 44-in. by 32-ft. Eagle Iron Works single fine material screw. After dewatering, the material is discharged to an 18-in. by 70-ft. Pioneer conveyor that is pivoted at the tail pulley. This conveyor can be swung through a short arc to discharge directly onto a stockpile of one material, or positioned to line up and connect with a shorter conveyor to which the other fraction is fed and carried to a discharge point over another stockpile.

The material retained on both decks of the above screen is chuted to a tubular type 7- by 24-ft. Eagle double log washer. This unit was installed to handle the small amount of slack coal particles found in the deposit, as well as shale fragments, and any other soft materials in the feed. It is run very dry in order to increase the breakdown of these materials through abrasion.

The log washer discharges to a 3- by 6-ft. single-deck Simplicity screen equipped with spray bars and screencloth of ⅛-in. openings. Here the coal and soft stone particles are rinsed off, and the cleaned material is chuted to an 18-in. by 100-ft. inclined conveyor for transfer to the final screen.

Generally fitted with a ⅝-in. opening screencloth, this 3- by 6-ft. single-deck Simplicity screen is mounted over a pair of 25-cu. yd. truck loading bins. The two fractions separated are chuted directly to the appropriate bin. A boom conveyor suspended from the bin structure provides also for transfer of the fraction passing the screen to a stockpile.

In addition to loading directly from the above truck bins, materials are recovered from the various stockpiles by a 2-cu. yd. Michigan 125A front-end loader. A total of 258 connected horsepower is provided by the plant motors, which are supplied 440 v.

Wash water for the two washing screens, fine material screw, and log washer is supplied through a 6-in. line from a reservoir near the plant by a 1,200-g.p.m. American Marsh pump.

Operations of this compact facility, on a six-day week, require only a two-man crew, including Fred Oxbrough, superintendent, and G. M. Hunter, dragline operator. Equipment in each phase can be started on shut down from a central control panel.

While a part of the production is occasionally sold to other ready-

(*Continued on page* 90)

Right: Coal and soft stone particles are abraded in this double log washer and rinsed off in a following screen before transport on the belt, left, to the final screen and truck bins.

Below: Fred Oxbrough, right, superintendent, designed the plant for 100% self-sufficiency. G. M. Hunter is the dragline operator.

Below, right: R. L. (Bob) Willson, left, president; Art Willson, superintendent, Rives Junction plant; and Mabel Griswold, bookkeeper.

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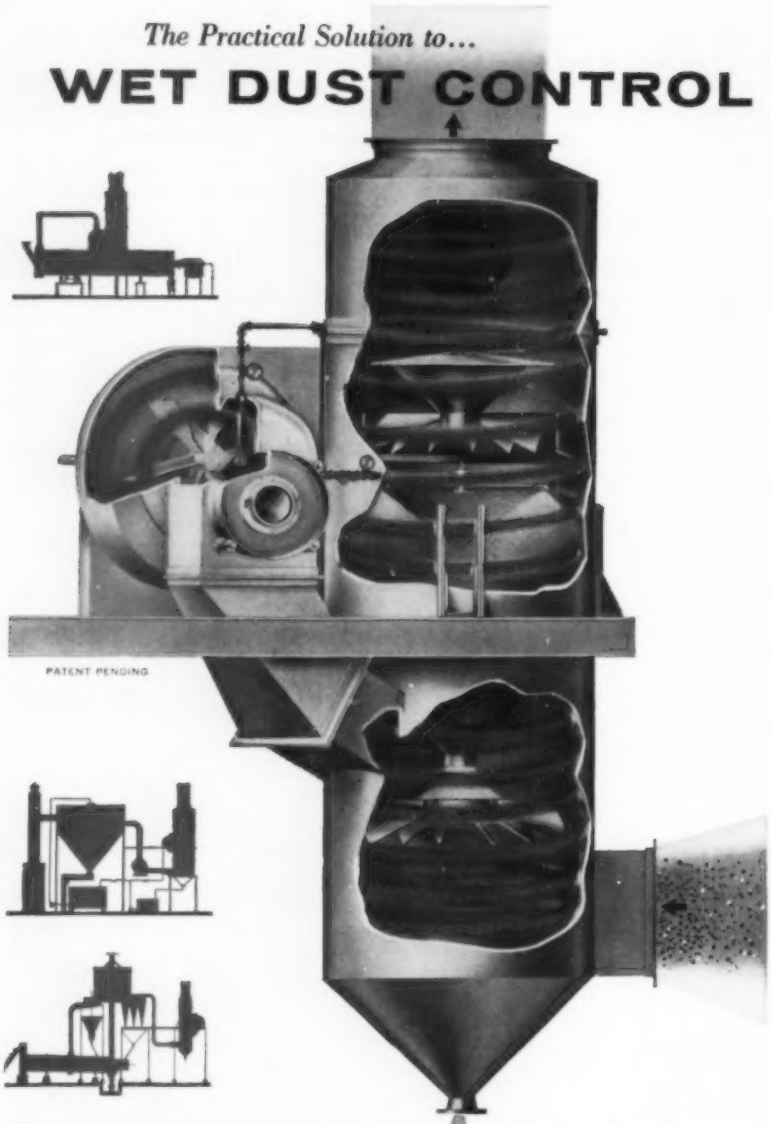

The Ducon Centrifugal Wash Collector, Type UW-4, is a basic air scrubber with extensive applications for the wet principle collection of problem dusts and recovery fines. For maximum collection efficiency of extremely fine dusts under the most varied conditions . . . such as in high dust loading and for abrasive dusts . . . this unit has proved unexcelled in many types of industrial processes. Unitized construction, precision shop-fitted parts and integrated fan assembly provide simple, rapid installation into the normal processing system.

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Enter 76 on card, page 97

Harbison-Walker

(*From p. 70.*)

Here parallel rows of automatic welders are used to complete the modern Metalkase package securely.

For the production of the fired products, a large tunnel kiln has been provided. It was designed by Harbison-Walker's engineering staff, which took full advantage of the experience of the operating department in working with the five basic tunnel kilns at the firm's other plants.

The kiln is equipped to burn gas, light oil, or Bunker oil. Groups of burners are zoned to allow for ready adjustment, and all of the air entering the burning zone must pass through the burner as the units are completely sealed against the introduction of free air from the room, or the leakage of hot gases from the kiln if it is being pressure-fired.

At the entrance end, the kiln is equipped with a double door and a vestibule system to prevent disturbance of the draft during the charging operation, which is carried out continuously at regular intervals.

Both thermocouple and radiomatic instruments are provided for measuring temperatures. These recording and direct reading instruments provide the information which permits the operator to set up any desired burning curve, and by adjustment of individual burners, to secure uniform heating and cooling conditions at the optimum rate throughout the length of the kiln.

As is true in all Harbison-Walker plants, special attention has been paid to dust control. At all necessary points equipment is completely enclosed and connected to some of the many modern bag-type collecting systems. In addition, the grinding department is enclosed.

Samples are regularly taken at all stages of the brick-making process for immediate testing in the plant quality control laboratory. In addition, other tests are conducted regularly at the company's central quality control laboratory near Pittsburgh.

The products are carefully inspected as they are palletized from the automatic welding lines and from the tunnel kiln cars. Lift trucks handle the products into the stock sheds, which are 100 percent palletized, and also to proper points for shipment loading.

Vermiculite Producers Explore New Markets

J. Brooks Robinson, president of the Vermiculite Institute of Chicago.

THE Vermiculite Institute of Chicago held its 17th annual meeting at the San Marcos Hotel in Chandler, Ariz., March 22-27. A general feeling prevailed that long-term prospects for the industry are unusually favorable and that the nation's business will soon resume its upward trend.

J. Brooks Robinson, vice-president of the Robinson Insulation Company, Great Falls, Mont., was elected president. Two new directors were also named: Shelton W. Greer, president of Vermiculite Products, Inc., Houston, Tex., and L. G. McDiarmaid, president of Insulation Industries (Canada), Ltd., Vancouver, B. C.

Edward R. Murphy was re-elected as managing director, and Walter J. Bein, vice-president of the Zonolite Company, Chicago, was re-elected treasurer.

Two new companies admitted to membership were the Alabama Vermiculite Corporation, Atlanta, Ga., and the Ari-Zonolite Company Glendale, Ariz.

A summary of completed institute projects presented by C. H. Wendel, retiring president, and reports of various committee chairmen showed considerable activity during the last year. It was stated that a number of new publications, specifications, and brochures had been issued or started, and that an extensive market development and testing program was well under way. During the year the institute was represented on many committees of national importance and at numerous meetings of building code officials and other government agencies.

An entire day was devoted to discussions of vermiculite concrete and visits to concrete roof jobs recently completed or under way in the Phoenix area.

C. R. Babb, chairman of the Concrete and Roofing Committee, discussed an economical new roof system which shows great promise for schools and similar types of buildings. The system, thus far used primarily in southern areas of the nation, consists of concrete joist framing with a steel welding strip cast into the top chord of the joist. Galvanized steel sheets are welded to the strip, and a 1:6 mix of vermiculite concrete is placed to desired thickness. The under-side of the steel sheets is sprayed with vermiculite acoustical plastic for noise control and a favorable fire rating.

One of the best selling points of the system, Mr. Babb pointed out, is that after the metal sheets are laid, any type of conduit needed can be run on top of the deck and covered with concrete. Conduit presents a problem to the architect and engineer on many types of decks.

R. L. Aldrich, California Zonolite Company, presented a motion picture of an interesting job totaling over one million sq. ft. of vermiculite concrete which is nearing completion at the new Kaiser steel plant at Fontana, Calif. The incombustibility of the deck and the savings that could be realized in insurance premiums were the main reasons that Kaiser switched to vermiculite concrete from the steel decking and rigid insulation used in earlier construction, Mr. Aldrich explained.

D. J. Boone, chairman of the Agricultural Committee, reported increasing use of vermiculite as a soil conditioner and in turf work for golf courses and commercial sod

Members of the Vermiculite Institute of Chicago pose for a group picture at their 17th annual meeting at Chandler, Ariz.

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PRODUCES TREMENDOUS VOLUME WITH *GREATER PROFITS!*

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THE GREATEST COMBINATION OF HIGH-CAPACITY FEATURES EVER BUILT INTO A JAW CRUSHER!

PEAK PRODUCTION with overhead eccentric, balanced forced feed design. The proper eccentric throw, the angle of the toggle, and the RPM, are engineered to give the *exactly* correct amount of primary breaking in the upper portion of the crushing chamber, *force* the material downward to a second reduction stage in the lower portion, and permit *quick* discharge of crushed material for highest tonnage.

EXTRA POWER with heavier-than-average flywheels insures smooth, even operation under surge loads for high capacities.

TIME SAVING, easy, fast adjustment to produce various sizes. Hydraulic rams easily move the adjusting wedge, also permit fast replacement of the toggle plate when necessary.

STRONG, RIGID one-piece base assures maximum strength. Fully stress-relieved after assembly to eliminate any metal fatigue caused by stress in weldment. The solid, one-piece unit is rigid and free from flaws, fabricated with heavy rib-reinforcements to withstand the shock of punishing loads and prevent flexures that might otherwise cause undue wear on the bearings.

LARGEST ECCENTRIC SHAFT of any 42" x 48" Jaw Crusher. Extra-strong chrome-nickel steel, accurately machined and polished ground for perfect tolerance.

Other job-proved features include: One-piece pitman construction; spherical, self-aligning roller bearings protected by labyrinth seals; split hub flywheels for easy removal; hydraulically removable bearings.

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growing. Home lawns also represent a large market, he said. A new film showing the use of vermiculite in the agricultural chemical field was completed last year and shown to organizations in the United States and Canada. The film made many new customers, some of whom are rapidly becoming tonnage users, Mr. Boone said. Packages for agricultural vermiculite have been re-designed, and a new 6-cu. ft. weatherproof bag for outside storage has been made available.

L. G. McDiarmaid, chairman of the Market Development Committee, announced an increase of more than 20 percent in 1957 sales of vermiculite acoustical plastic. This is due in part to the introduction of machines for spraying on exposed acoustical surfaces, and in part to the widespread use of the material machine-applied directly to steel floor and roof constructions for fireproofing.

H. W. Steiff, chairman of the Insulation Committee, reported continuing interest in the use of vermiculite loose fill as high-temperature insulation. The product is now performing successfully in kilns, ovens, tanks, and in a wide variety of applications, he said.

Guest speakers included G. E. Morris, superintendent of building for the City of Los Angeles; Dr. Kenneth McFarland of Wichita, Kans., nationally known educational consultant; F. Alan Tiarks, general sales manager of Granco Steel Products Company, St. Louis, Mo.; and Earl F. Bennett, manager, road and building materials sales, Koppers Company, Pittsburgh, Pa. Mr. Bennett distributed specifications for the application of bonded built-up roofing over various types of vermiculite concrete roof insulation and roof decks.

Responsibility Accounting

(*From p.* 66.)

secretarial time; and often the changed sheets were not out as quickly as management would have liked.

The problem was met recently through the utilization of Remington Rand's Flexoprint system, which resulted in the production of a manual which is much easier to use. The system involves die-cut Flexoprint cards and panels which tie into the offset printing process to produce a professional-appearing publication.

The cards are inserted into a special card-holding device in a typewriter. On it, the typist types a line of copy. The card is then locked into the runners on the panel and slid into position beneath the card above it. When the panel has been filled to the proper depth, it represents a page in the manual.

The panels are then photographed, and masters are prepared from the negatives. At Riverside two-channel panels are used, which means pages are ruled in two columns. This practice has enabled the typists to get twice as much copy on each page as they could in the past, in a manner which makes it even more legible. Also contributing to this gain in copy is the fact that they no longer have to leave empty spaces for write-in memos as they did in the past.

Once each line is proofread, it does not have to be read again. When the page is ready, it is prepared for printing. In the process it is reduced in size, the type appearing about the size of newspaper print. The necessary copies are run off quickly, and distributed.

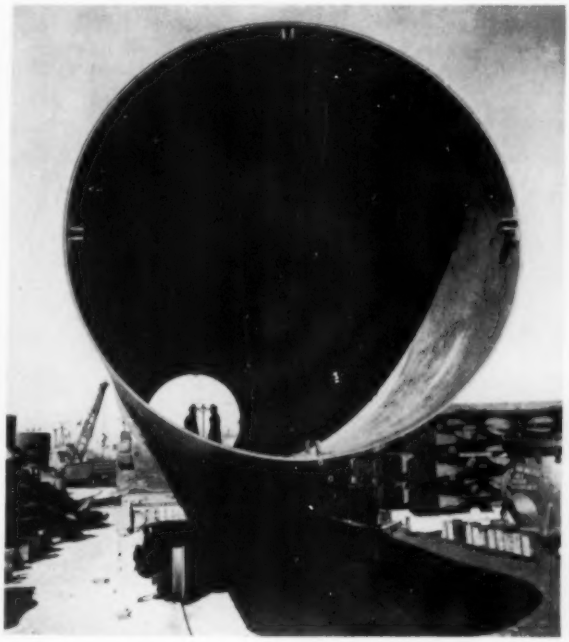
Corrections do not mean retyping an entire page — only the line or lines affected. These are proofread as they come out of the typewriter. The corrected cards are removed from the panel, and the new ones are slid into place. The entire process takes no more than a few minutes, and the corrected pages are ready for printing.

The heavy amount of typing required in the past has been sharply reduced. Similarly, the clerical and supervisory time which previously had to be allotted to this job has also been reduced. The supervisory centers get their essential cost accounting data much faster than was possible previously.

Moreover, the manuals have been reduced in size by 55 percent—from 115 pages to 50 - odd. They are therefore more convenient and of more value to the people who use them.

The Flexoprint panels—the pages of the manual—are always standing and ready for instant use. They are covered with plastic containers to keep them dust-free, and are housed in a special cabinet designed to permit them to slide in and out easily.

Despite the severe clerical bottleneck which has been broken, and the obvious savings in production costs, the principal overall benefit of the new method lies in its relationship to the *responsibility accounting* concept. In effect, it has further improved a managerial plan which had already proved its worth.



• This 70-ft. long kiln shell section is a part of one of the three complete cement-making plants shipped to Cementos Guadalajara, S. A., Jalisco, Mexico, by Allis - Chalmers, Milwaukee, Wis., in the last five months. Twenty-six railroad cars were used to deliver one of the plants — 15 for the kiln, which was sent in five sections, and 11 for auxiliary equipment. The complete kiln measures 12 ft. by 350 ft. long. When installation of all three plants has been completed, cement production in Mexico will be increased by approximately 8,000 bbl. a day.

← Enter 78 on card, page 97

Shale and Lignite Removal Provided for in Pennsylvania Plant

By WALTER E. TRAUFFER

ANOTHER ON THE SPOT REPORT

AN EXCELLENT example of a modern sand and gravel plant tailored to fit the deposit and the desired products is that of the Mahoning Valley Sand Company at West Pittsburgh, Pa. This 250- to 300-t.p.h. operation, completed in October 1956, was designed to make two sizes of coarse aggregates and three grades of sand at one time from a deposit containing considerable shale and lignite. The shale is chiefly a problem in the coarse materials and the lignite in the sand; both are removed effectively by the equipment used. The plant flow sheet can be adjusted to changing conditions, and provision has been made for the installation of additional equipment when needed for expansion.

A production of 250 to 300 t.p.h. is attained with the Mahoning company's new plant near New Castle, Pa.

The company was formed in 1923 with a small plant at West Pittsburgh. Over the years this operation was expanded and improved, and the present plant there has a capacity of 150 t.p.h. The fact that this deposit was nearly depleted and that more capacity was needed caused the decision to build a new plant at a location nearby. The site selected, one of the few large and accessible gravel deposits of good quality remaining in this area, is on Pa. State Route 18, three miles south of the city limits of New Castle, Pa. The new plant was designed by L. B. Smith, Inc., along general lines specified by the owners. The old plant is still being operated primarily for certain sizes of gravel.

The 350 acres of gravel deposit owned by the company is of glacial origin and is at the edge of the valley against the side of the hill. It averages 75 ft. deep, mostly above ground level. The overburden—up to 2 ft.—is not taken off, but trees and other vegetation are removed. The deposit is being worked on three separate 25-ft. levels because of variations in the gradation of the material. In this way the desired mixtures can be obtained for the products in demand. This system is also safer as the deposit has a tend-

ency to stand up and then slide. With a 75-ft. face this would endanger the shovel and truck operators.

Loading is being done with two ¾-cu. yd. Unit No. 1020 shovels powered by 3-cylinder 100 hp. G.M.C. diesel engines. These load to a fleet of four 10-ton trucks, two White and two International. The haul to the primary crusher is only a few hundred feet downgrade. The use of two small shovels makes it possible to blend from any two of the three faces continuously. Together they can load out up to 400 t.p.h.

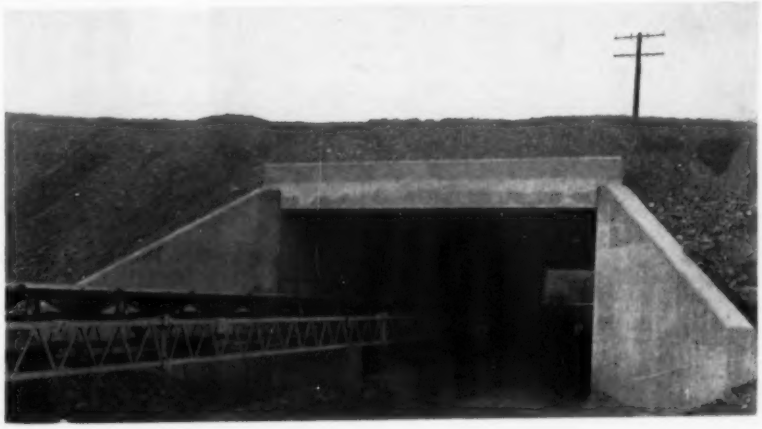
The trucks discharge the material over an 8-in. rail grizzly to remove the few small boulders. Minus 8-in. material drops into the 75-ton steel surge hopper which is supported in a concrete retaining wall containing 1,200 cu. yd. of concrete to hold back the dirt fill ramp from which the trucks dump. The Syntron Model F86 vibrating feeder is equipped with a 2-in. grizzly made of 18-in. long bars. This lets the fine material drop through, bypassing the 10- by 40-in. Good Roads primary jaw crusher. The output of this feeder is controlled by an Alliance "tenna rotor" (antenna control) in the control room on top of the plant. The crusher is V-belt-driven by a 50-hp. General Electric induction motor.

Minus 2-in. fines cushion the fall of the crushed gravel of the same size onto a 30-in. by 75-ft. belt conveyor. The main 30-in. belt conveyor to the plant is 701 ft. long. It goes through an underpass below the new State Highway No. 18. It is horizontal for 300 ft. and then inclines to clear the old Highway No. 18 to the top of the plant at a height of 75 ft. The underpass consists of concrete abutments with prestressed concrete slabs. A pan installed under the conveyor at the point where it passes over the highway prevents any dropping of material.

Both conveyors are Quaker nylon cord construction and are vulcanized. Barber-Greene idlers and self-aligning rollers are used, and the

Right: The surge hopper above the primary crusher holds 75 tons. Minus 2-in. material bypasses the crusher to the main belt.

Below: Variations in gradation of the deposit are met by extracting from three different levels.



In order to reach the plant site, part of the 701-ft. feed conveyor passes through an underpass built below new state route No. 18. Abutments were made of prestressed slabs.

conveyors are supported on L. B. Smith lattice steel frames. The long conveyor is driven at the rate of 250 f.p.m. by a 40-hp. Reliance motor through a Falk motor reducer and a Twin Disc fluid coupling. It has Link-Belt head and tail pulleys, the latter self cleaning, and a Continental Gin Company rotating brush cleaner.

This conveyor discharges the material on a 4- by 14-ft. Cedarapids horizontal screen equipped with sprays on both decks. The ⅞- to 2½-in. oversize is discharged through a ladder-type chute with Baker-Warren rubber lining, into one of three 75-cu. yd. truck loading bins. When this bin is full, the material overflows onto an 18-in. by 100-ft. stockpiling conveyor which discharges on a 6,000-ton pile. This material is sold, usually during the winter, for maintaining strip coal mine roads, for fill, etc.

The ½- to ⅞-in. gravel over the bottom deck of this screen is chuted to a 30-in. Stedman disintegrator.

The throughs of the bottom deck go *via* a split chute to a pair of 4- by 12-ft. Cedarapids 2-deck screens. These have $\frac{5}{32}$- and $\frac{3}{32}$-in. wire cloth. The $\frac{5}{32}$- to ½-in. material over the top decks of these screens also goes to the disintegrator.

The 30-in. Stedman disintegrator serves to break up soft stone, lignite, etc., so that it can be more readily removed. It is driven at the rate of 900 r.p.m. by a 40-hp. Fairbanks-Morse motor through V-belts. Its product is discharged on a 4- by 12-ft. Cedarapids screen with ⅜- and $\frac{3}{32}$-in. cloth on its two decks.

The ⅜- to ⅞-in. oversize is chuted into a second 75-cu. yd. bin from which an 18-in. by 100-ft. belt conveyor discharges the overflow to a second 6,000-ton stockpile.

The $\frac{3}{32}$- to ⅜-in. gravel over the bottom deck of this screen is discharged into the third 75-cu. yd. bin. An 18-in. by 100-ft. belt conveyor carries the overflow to the third 6,000-ton stockpile.

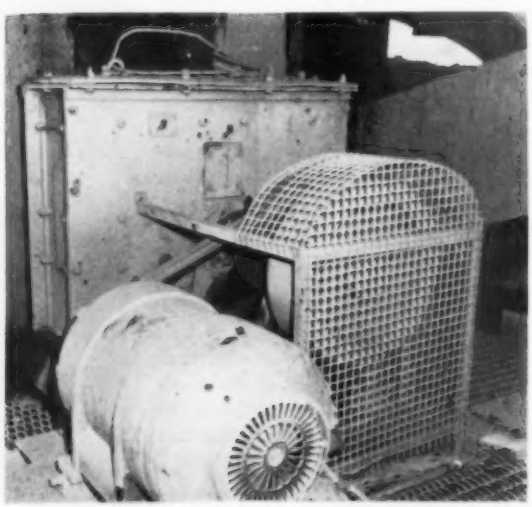
The minus $\frac{3}{32}$-in. material through the bottom deck of this screen is discharged into a 36-in. by 25-ft. Eagle Iron Works double-screw washer. The finished product is discharged on the ground and is rehandled to a stockpile by a 2-cu. yd. P&H crawler crane.

Going back to the pair of 4- by 12-ft. screens, the $\frac{3}{32}$- to $\frac{5}{32}$-in. fines off their bottom decks goes to a 24-in. by 18-ft. Eagle single-screw washer. This unit is equipped with a shale and trash remover at its feed end which overflows most of this material without losing much of the sand. This material, along with the

Left: The feed conveyor (left) discharges to the washing screen. Both decks of the latter have spray bars.

Left: In normal operations, two types of sand are processed with this scalping tank, and twin screw washer, left.

Below: This disintegrator was installed to break up soft materials, i.e., shales, lignite, which are then more easily removed.



KUE-KEN® crushes more rock per hour, every hour...automatic flywheel release saves downtime, costly repairs

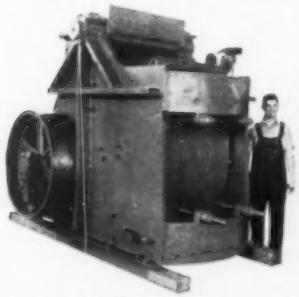
Here is a table of tons per hour that will pass through crusher with jaws set at dimensions shown when measured in the closed position.

Kue-Ken crusher size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"	6"	Horsepower range
24" x 12"	22	26	32	36	43	50	56					15 to 30
30" x 12"	32	35	38	42	55	70	76	85	110			20 to 30
36" x 10"	38	47	57	67	80	91	105					25 to 40
36" x 20"					70	82	90	115	135	160		30 to 50
42" x 25"					90	120	150	165	180	215	250	40 to 60

Table is based on crushing average hard dry quartz or similar rock weighing at least 100 lbs. per cubic foot when crushed. 32 sizes available from 12" x 5" to 48" x 42".

Tramp iron cannot damage Kue-Ken or cause long, costly interruptions to crushing schedules. With Kue-Ken, an automatic control releases the flywheel and permits it to run free without ratcheting. On correction of the cause, the flywheel can be quickly reset and crusher put back into operation promptly. Control can be set to stop the motor automatically on release of flywheel or to sound an alarm. Kue-Ken gives the lowest cost per ton crushing. It has a built-in lubrication system with thorough lubrication that permits more crushing strokes per minute for greater crushing capacity. Horsepower requirements are less. Regardless of your crushing requirements, see in the above chart how a smaller, less costly Kue-Ken can provide the capacity you require.

Kue-Ken flywheel with automatic release



WRITE FOR CATALOG

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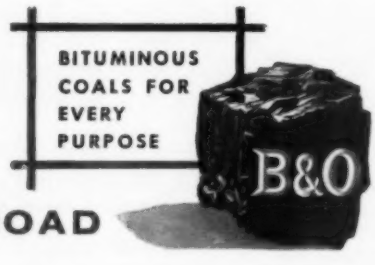


BALTIMORE & OHIO RAILROAD

minus 3/32-in. fines through the bottom decks of the twin screens, is flumed to a 10- by 32-ft. Eagle Model BM-D 3350 sand scalping tank. There are three rows of 9 compartments or ports, each with hydraulic valves operated by a 1-hp. motor. These ports can be opened or closed in any desired arrangement to make the desired grades of sand.

Usually two types are made at one time—filter and mason's sands. Each of these two grades goes to a 36-in. by 25-ft. Eagle double-screw washer. These units have sprays between the screws to wash back any lignite or other foreign material; this they do very satisfactorily. The two sizes of sand are discharged to 8,000-ton stockpiles.

Trucks are loaded from the stockpiles by a 2¾-cu. yd. Michigan rubber-tired front-end loader and the 2-cu. yd. crane previously mentioned. All shipments are weighed on a 100,000-lb. capacity Winslow truck scale which is equipped with a Howe Weightograph.

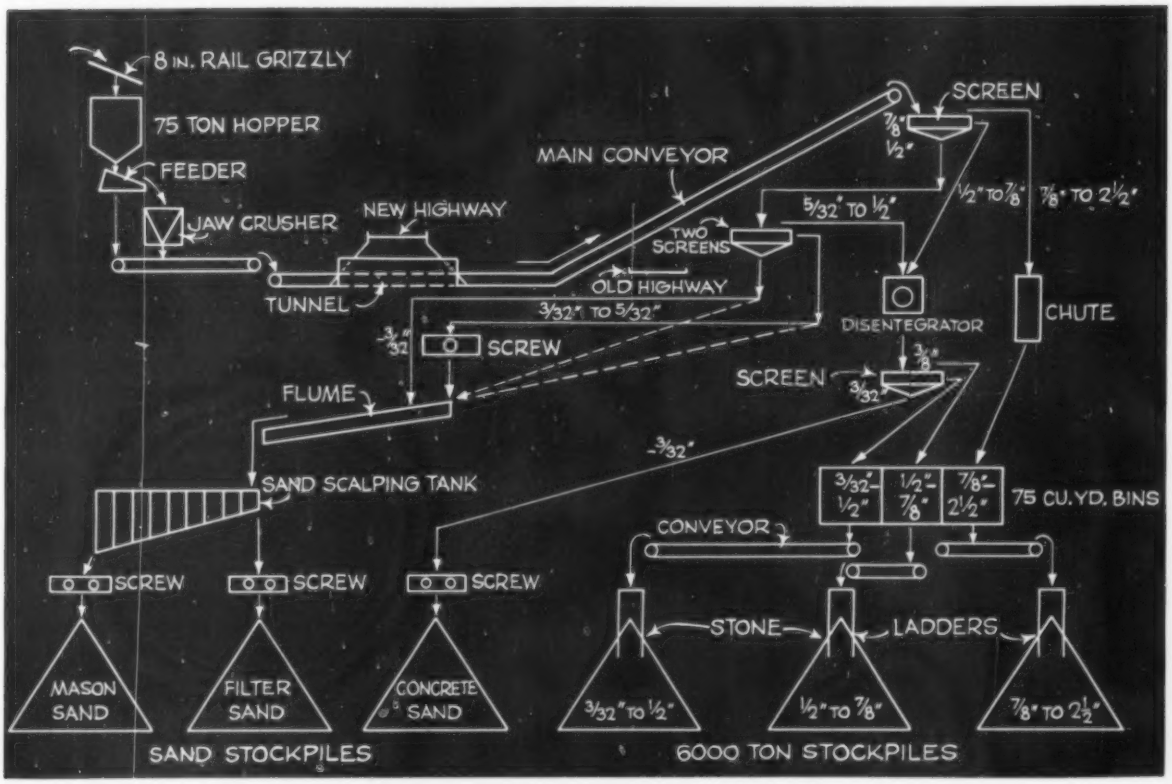
All plant operations, beginning at the primary crusher, are controlled from a room at the top of the plant. Purchased electric power is reduced from 8,800 v. to 220 v. for all motors by a 3-phase transformer. This, together with all switches, etc., is in a concrete building at ground level.

The wash water for the plant is obtained from a pond which nor-

(*Continued on page* 90)

Right: A closeup of the plant from the sand processing side.

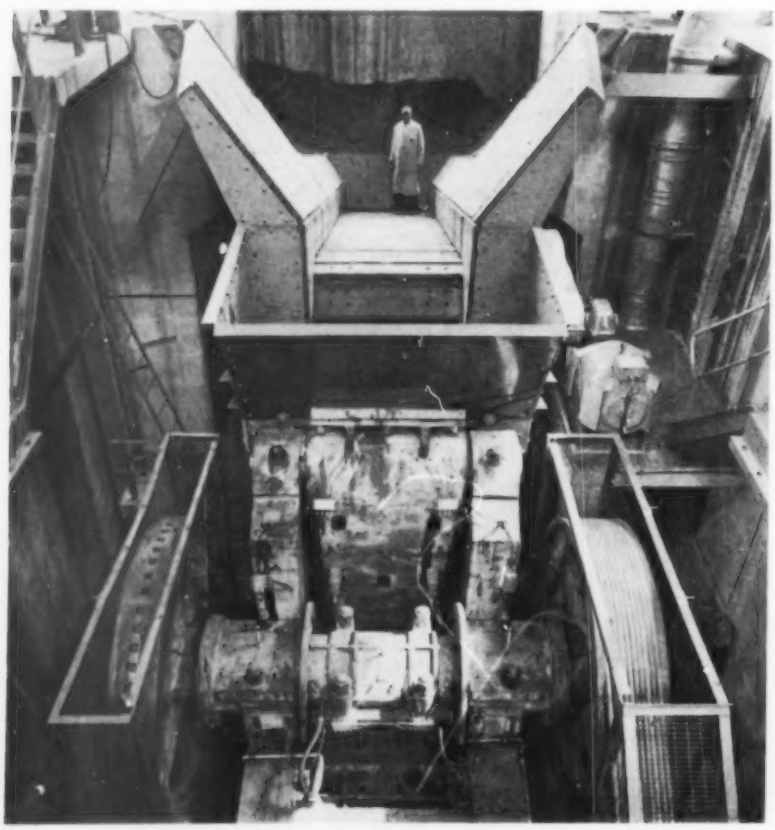
Flow diagram of the new Mahoning Valley Sand Company plant.



Large South African Plant Goes into Production

major fluxstone source a 1,500,000-ton operation

An indication of the size of the primary crushing installation is evident by reference to the man standing at the top.

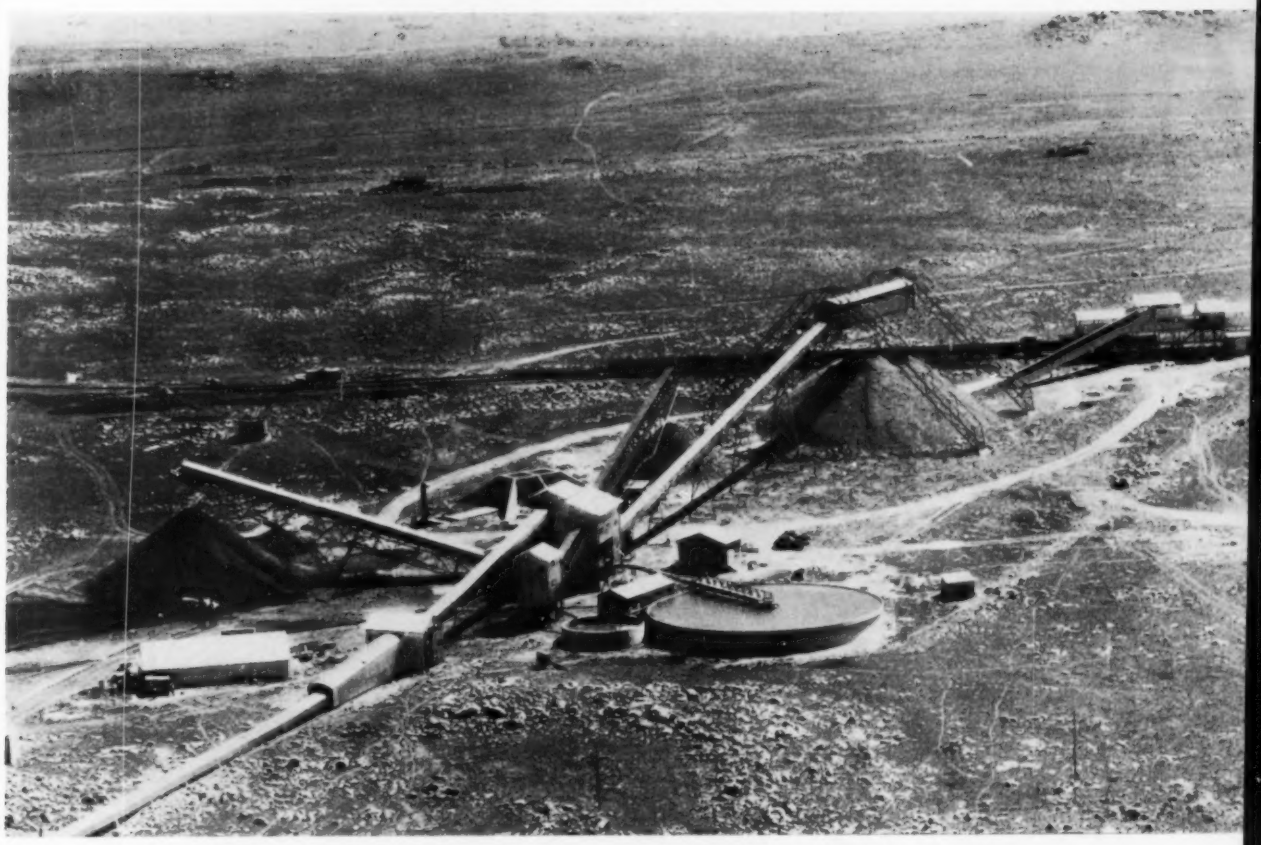


By THEODOR CORDES

ONE of the most interesting and perhaps the largest mechanized materials - handling installations in the Union of South Africa was put into service recently at the opening of a new crushed dolomite plant at Mooiplaas, near Pretoria. The annual output of high-fluxing magnesian limestone for refractories will be approximately 1½ million tons, a volume which will make South Africa independent of outside sources for a long time to come.

This plant was designed and constructed by E. L. Bateman, Ltd., Allis-Chalmers distributor and licensee in South Africa, for the South African Iron and Steel Industrial Corporation (Iscor). The operation was officially opened before a large gathering by Dr. C. M. Kruger, general manager of Iscor.

Plant products are used exten-



An aerial view of the new plant near Pretoria, South Africa. At the lower left is the final section of more than a mile of conveyor that originates at the primary crusher in the quarry.

sively for the lining of converters in the basic process of steel making. The larger sizes are used in steel smelting; intermediate sizes in blast furnace plants; and the smaller fractions in road construction and building work.

An extensive deposit of dolomite lies in the Mooiplaas area and the quarry lies in a valley approximately a mile from the plant and the adjacent railway on which the materials are taken to the steel works. Heavy bedding of the formation leads to substantial sizes in the fragments brought down in blasting. Fragments range up to 30 by 42 by 24 in.

The primary jaw crusher, a 48- by 42-in. Allis-Chalmers unit, situated in the quarry, weighs 80 tons and was manufactured for E. L. Bateman by Vecor at Vanderbijl Park to Allis-Chalmers designs. Quarry-run stone is brought to a dump hopper in 15-ton quarry trucks and is transferred to the crusher on a 60-in. wide Link-Belt heavy-duty manganese feeder which has a capacity range of 95 to 380 t.p.h.

After primary reduction, the stone is transferred by a 30-in. 350-ton-capacity Link-Belt feeder to a 42-in. belt conveyor. For a distance of 2,020 ft. this belt carries the stone on a lift of 245 ft., at a speed of 350 f.p.m. A second 42-in. conveyor is fed from the first at a transfer point and conveys the material another 2,120 ft. with a lift of 245 ft., or a total lift of 490 ft.

The latter belt discharges in a 5- by 14-ft. Allis-Chalmers twin-deck Ripl-Flo vibrating screen where the stone is washed, and separated to further reduction and washing phases before passing to the various stockpiles on the plant site.

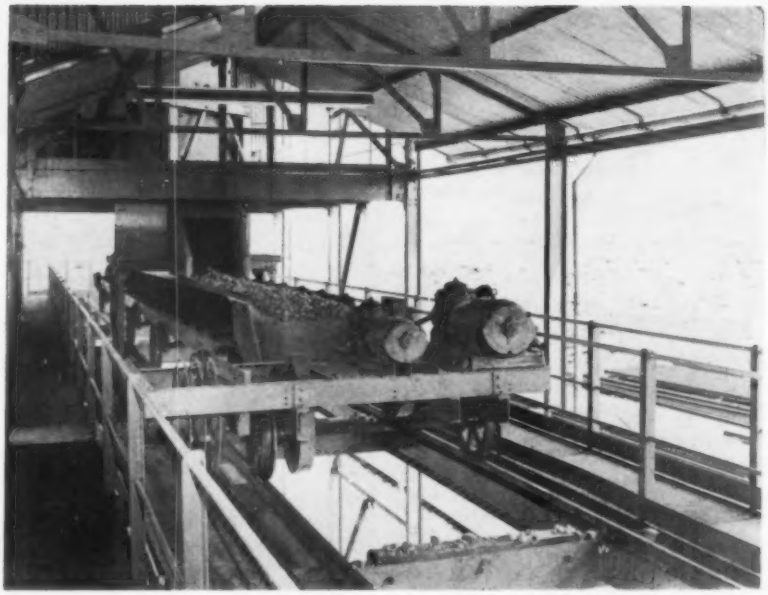
The upper deck of the vibrating screen has a 2½-in. square opening grid, and the lower deck has ⅝-in. openings; but the plant design is such as to offer, with screens cloth changes, complete flexibility for making any sizes demanded.

In the present flow the crushed and washed stone is separated in three main sizes—minus 6-in. plus 2½-in.; minus 2½-in. plus ⅝-in.; and minus ⅝-in., with the proportions variable to suit requirements.

The largest material (minus 6-in. plus 2½-in.) is carried from the vibrating screen on a 30-in. by 160-ft. belt conveyor, with a travelling tripper, on a lift of 48 ft. to a 900-ton live stockpile. The belt has a speed of 250 f.p.m. and a capacity of 300 t.p.h. A 42-in. shuttle conveyor on 53-ft. centers with a capacity of 600 t.p.h. and a speed of 200 f.p.m. carries the stockpiled material to an Avery 5204 railway

Left: This conveyor and tripper discharge to an underlying 5,000-ton stockpile. Running at a speed of 250 f.p.m., the conveyor has a capacity of 300 t.p.h.

Below: Finished products are loaded from this weight bridge over a loading track, with materials discharged from a shuttle conveyor of 600 t.p.h. capacity.



weight bridge mounted on a gantry over the loading track. The largest stone may also be fed to a 1051 Allis-Chalmers Hydrocone crusher from which the secondary crusher product is supplied to an Allis-Chalmers 5- by 14-ft. Low Head double-deck vibrating screen. The latter has 1½-in. top deck openings and ⅝-in. bottom deck openings, and is also fed from the bottom deck of the preceding screen. Top deck retained material is carried on a 30-in. by 284-ft. belt conveyor on a 60-ft. lift to a 5,000-ton stockpile. The speed of this conveyor is 250 f.p.m. and its capacity, 300 t.p.h.

In a parallel flow, that includes throughs from both the Ripl-Flo and the Low-Head vibrating screens, these smaller materials pass to an 8- by 30-ft. Dorr classifier and from the classifier to a 1,000-ton fines dump. From the latter they are reclaimed *via* a 36-in. belt feeder and a 20-in. belt conveyor to a "chips" screening plant, now being erected. Portions of the screening plant were originally installed at the former dolomite Iscor plant at Voortrekkerhoogte, now partially dismantled. This portion of the main plant will provide stockpiles for minus ⅝- plus ½-in.; minus ½- plus ⅜-in.; minus ⅜- plus ⅛-in.; and ⅛-in. by 65-mesh.

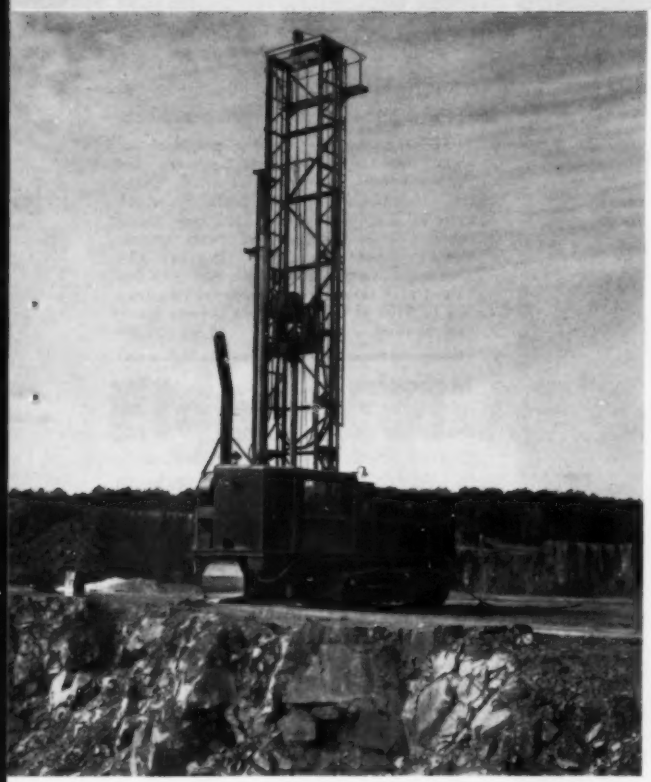
Wash water for the plant is supplied from a 4-in. main to a tank, from which it is circulated by 700 g.p.m. Pulsometer single-stage centrifugal pumps to the sprays in the vibrating screens. The return water from the sprays is taken to the Dorr classifier, thence with solids to a 100-ft. diameter Dorr-Oliver thickener. Thickened slime is pumped by Dorrco 6 W and 3-in. Wilfley pumps to a slimes dam, where small particles of stone can be recovered and used as building material.

Below the full length of the stockpiles are reinforced concrete tunnels in which continuous belt conveyors are installed. These reclaiming conveyors draw materials from the stockpiles for delivery to the shuttle conveyor, previously mentioned, for rail loading.

Among the interesting features of this new plant is its 5,528-ft. length of field and intra-plant conveying system. The facility has been provided with a total of 1,025 connected horsepower.

(*See flow diagram on page* 90)

Boost Blast Hole Footage with Bucyrus-Erie Rotaries



Blast hole footage increases fast when Bucyrus-Erie rotaries move in. Look over the capsule stories with the drills pictured. You'll see how important features helped these Bucyrus-Erie rotary users put down hole fast. You, too, can benefit from the high production of Bucyrus-Erie rotaries. These speedy rigs are available in two sizes — the full-electric 50-R for drilling 9⅞ to 12¼-in. holes, and the 40-R with either full-electric or diesel-electric power for drilling 6¾ to 9-in. holes. Write us today for illustrated bulletins. 78858C

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

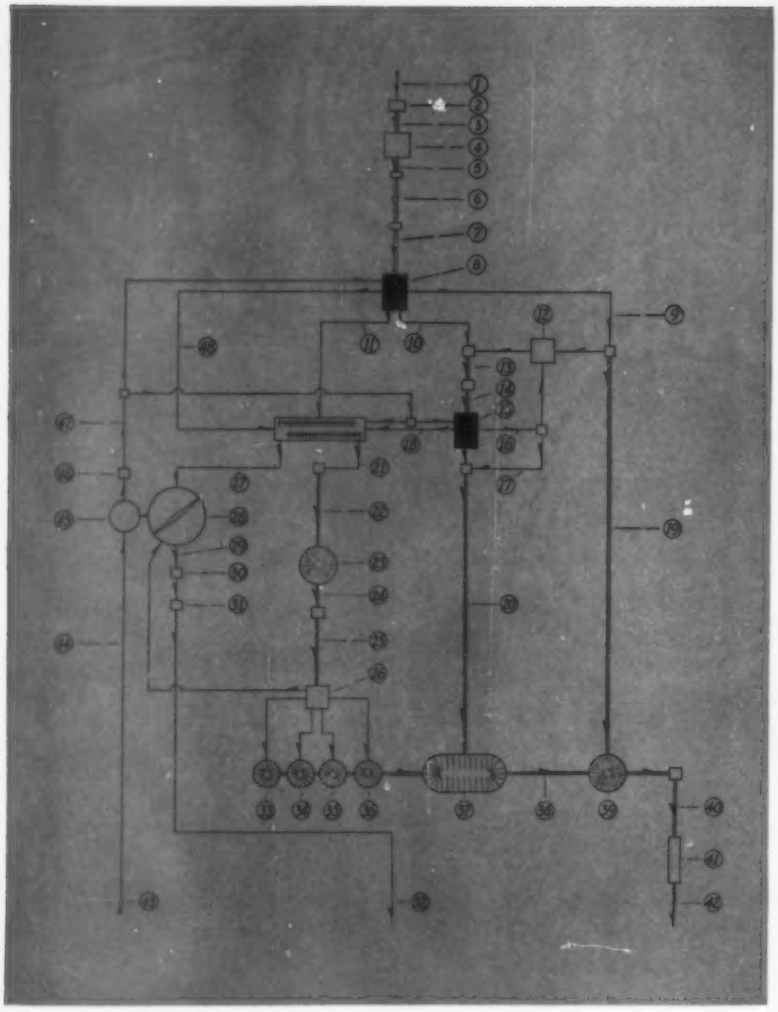
BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

WISCONSIN A 50-R cuts through tough, hard-to-drill quartz and granite at this quarry in northern Wisconsin. It achieves the greatest possible penetration in this hard rock because maximum down pressure can be exerted on the bit while the drill pipe is turning slowly. Hydraulic pulldown provides controlled load on drilling tools.

ONTARIO, CANADA The Ward Leonard variable voltage system on this 40-R gives the operator smooth, instant command over rotation of the drill pipe. He can choose the most efficient speed for a given formation. To meet requirements, he can vary the speed without stopping the drilling operation. The machine is drilling blast holes in construction of Lambert Lock on the St. Lawrence Seaway.

PENNSYLVANIA Quartzite segmented by fissures and seams makes drilling difficult at this Pennsylvania quarry. But when the 40-R drill shown here was put on the job, footage increased so noticeably that the 40-R was made a permanent part of the production set-up. One of the features that contribute to the 40-R's fine performance at this location is air bailing of cuttings. Compressed air cools the bit and cleans out cuttings, eliminating the need for water — especially important during cold weather. Heavies pile up adjacent to the hole, provide handy stemming material and permit dry sampling.

CALIFORNIA This 50-R drill is so speedy that it was able to replace two cable tool rigs and a rotary that had been working full time at a California cement quarry. Due to the fine performance of the 50-R at this quarry, a smaller 40-R was added to the production team. To speed progress, the 40-R drills continuously for 27 ft. 9 in. and the 50-R drills continuously for 32 ft. 9 in. — the full length of drill pipe.



Flow diagram of the Mooiplaas crushed dolomite plant.

Legend

1. Quarry run
2. Dump hopper
3. Feeder, 95-380 t.p.h.
4. Primary jaw crusher
5. Feeder, 350 t.p.h.
6. Conveyor, 42-in. 2,020 ft.
7. Conveyor, 42-in. 2,120 ft.
8. Vibrating screen
9. Stone, plus 2½ in.
10. Stone, 2½ by ⅝
11. Stone, minus ⅝
12. Secondary crusher
13. Conveyor, 30-in. 71 ft.
14. Conveyor, 30-in. 53 ft.
15. Vibrating screen
16. Stone, 2½ by 1½
17. Stone, 1½ by ⅝
18. Stone, minus ⅝
19. Conveyor, 30-in. 160 ft.
20. Conveyor, 30-in. 284 ft.
21. Fines, ⅝ in. by 65 mesh
22. Conveyor, 20-in. 159 ft.
23. Fines dump, 1,000 tons
24. Feeder, 60 t.p.h.
25. Conveyor, 20-in. 178 ft.
26. Screening plant, chips
27. Stone, minus 65 mesh
28. Thickener
29. Slime
30. Pumps
31. Pumps
32. To slimes dam
33-36. Stockpiles
37. Stockpile, 2½ by ⅝
38. Conveyor, 36-in. 418 ft.
39. Stockpile, 6 by 2½
40. Shuttle conveyor, 42-in.
41. Weighbridge
42. Loading track
43. Water supply
44. 4-in. main water line
45. Make-up water
46. Pumps, 700 g.p.m.
47. Water to sprays
48. Water from sprays

• Robert Mitchell, center, president of Consolidated Rock Products Company, Los Angeles, Calif., congratulates U. S. Davis, left, and Harry W. MacDonald Sr., right, each of whom received a $300 cash award for driving 21 years and 22 years, respectively, without an accident. The two winners were among 205 employees who received cash safe driving awards ranging from $25 to $300 at the company's Drivers Breakfast meeting.

Mahoning

(*From page* 85)

mally is full to within 10 ft. of ground level. When necessary, a 6-in. Worthington pump is made to feed in water from a creek a few hundred feet distant. The water for the plant is provided by a 10-in. Peerless centrifugal pump feeding 2,000 g.p.m. against a 250-ft. total head, including a 100-ft. vertical lift. This pump is driven by a 200-hp. motor.

Waste water from the plant goes to the creek, but it is first thoroughly cleaned of silt. It flows into a settling basin near the plant which is 45 ft. wide and 135 ft. long. This has concrete walls and sides and slopes down to 5 ft. deep at the far end, where it overflows into the creek.

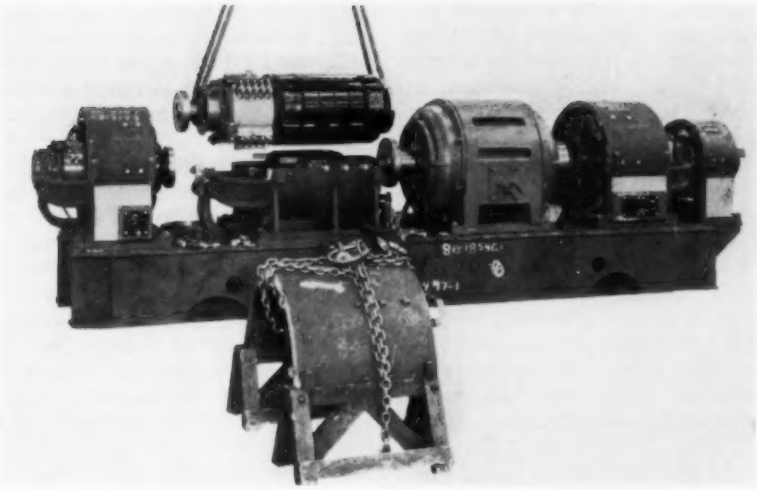
The main office of the company is at this plant. Officers are: Carl Anderson, president; Daniel M. Cowher, vice-president and general manager; Howard Snyder, secretary; and J. Roy Snyder, treasurer. Burnett D. Mickley is sales manager.

Willson Brothers

(*From page* 75)

mix concrete operators in the area, about 95 percent of the plant output is trucked to Rives Junction for use in the company's own ready-mixed concrete and concrete masonry departments.

Heading this diversified organization is Bob Willson, president. A. C. "Art" Willson is superintendent of the block and ready-mix operations at Rives Junction.



A view of a typical motor generator set, showing how cradle construction facilitates easy removal of an armature.

Electrical Maintenance—

A Key To Good Shovel Operation

By E. D. ELWONGER

It has always been amusing to me to compare publication on generator care with the actual conditions under which shovel equipment must operate. Almost any installation instruction you read will begin like this: "Unpack the motor-generator set in a clean, dry place." Shovel erection sites are practically never clean *and* dry, and usually *neither* clean *nor* dry. The amazing thing is that the equipment works in spite of the relaxed precautions. This fact I attribute mainly to a co-ordination between shovel user, manufacturer, and electrical designer that is unequalled in any other industry.

The versatility and ease of control of the d.c. machine and its capability for high overload make it an ideal drive to be used by the shovel designer. Co-ordination between shovel and electrical manufacturers has enabled their designers to match motors and generators with the associated control to do a specific job and to withstand the rugged duty which the equipment must perform. But all this technological progress is of little value to the shovel operator unless he maintains his equipment properly, to keep it in good running order.

There are many things a shovel operator can do, some of which fall into the category of common sense. In others, it is more a question of customer education and understanding. By using a few basic maintenance and operational procedures, the shovel owner can increase both output and performance to a degree that can mean real dollar savings.

Maintenance problems as described in this article apply mainly to d.c. motors and generators. Some, because of their general nature, can be applied to any electrical equipment. It would be impossible to list them all. Therefore, only a few of the most common ones can be covered.

Cleanliness Perhaps the hardest maintenance procedure to justify, because of the absence of direct results, is the matter of cleanliness. If every dirty generator would suddenly stop, I doubt that there would be any shovels operating today. And yet a check of maintenance records will show that operators who frequently take time to blow out dirt, who wipe commutators with a clean lint-free cloth, who clean up spots of grease and oil and investigate their cause, and who provide an adequate ventilating system with good clean air are those who have the lowest numbers of failures and the least amount of down time. Perhaps this simply indicates that operators who are careful housekeepers are also careful about the more vital maintenance items. If good housekeeping serves only the purpose of establishing a

*Direct Current Motor and Generator Department, General Electric Company.

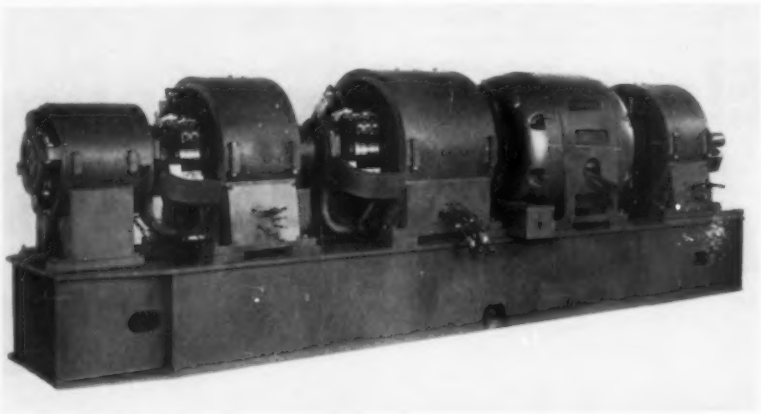
visual check of all operating parts to detect approaching failure, it has served a worth while purpose.

Commutator Adjustment Commutators and commutation adjustment are probably the most frequent items of maintenance of a d.c. generator. Centrifugal stresses of rotation are appreciable, usually of a magnitude of over 600 g's. This means that as you ride around on the commutator, you would tend to be thrown out radially with a force equal to 600 times your own weight. These stresses, aggravated by the heating and cooling cycle associated with extremely high surges of current, cause the commutator bars to move radially and relative movement between the bars results. Sometimes this shows up a general egg-shaped out-of-roundness. Other times it is indicated by high or low bars or groups of bars.

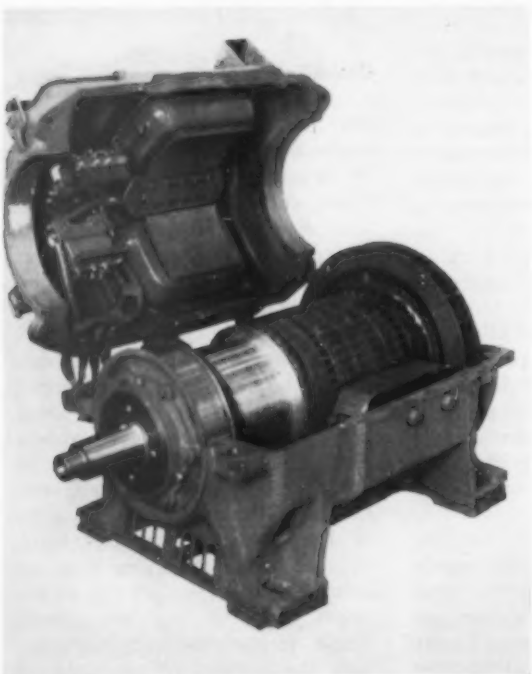
Other causes of commutator out-of-roundness are unequal wear, a poor commutator, brush chatter, poor film, and selective commutation. Each condition apparently aggravates a progressively worsening situation. The results are broken brushes, excessive sparking, and the accompanying excessive heat. The high temperature burns brushes and commutator bars, warps brushholders, and corrodes electrical contact surfaces, until eventually complete failure results.

It has been estimated that a difference in radial height of 0.0002 in. between adjacent bars is enough to cause commutation trouble. A more practical and usable limit is a total commutator runout of .0025 in. This is a general rule of thumb and should be used with discretion. If commutation trouble develops in a generator and the runout is measured at .0025 in. or more, the

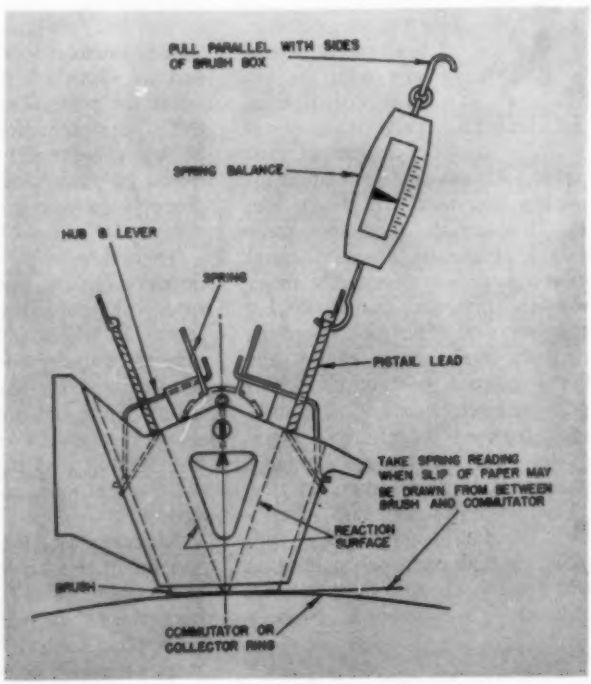
Right: A typical motor generator set and mounting.



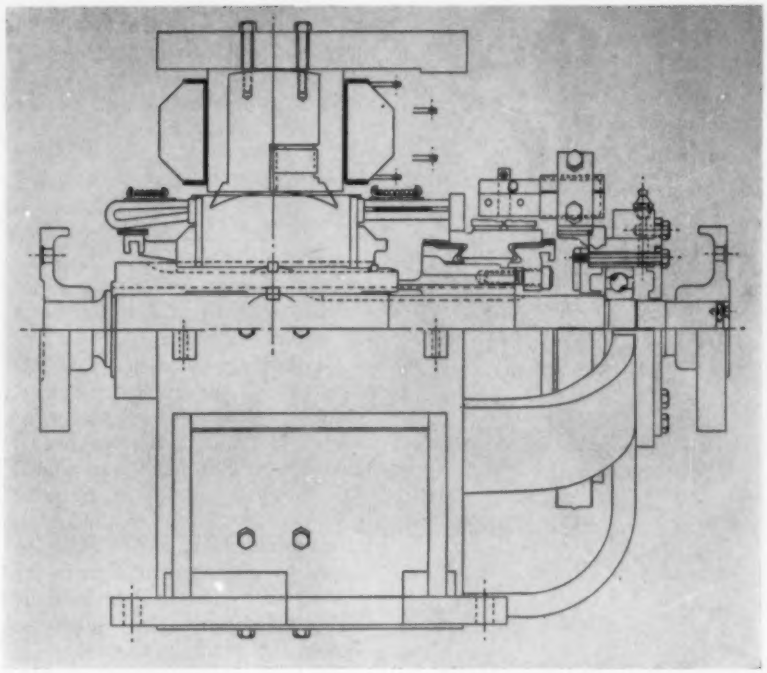
Below: This picture shows a shovel motor, with the top half open for easy armature removal.



Below, right: Sketch of a brushholder showing the method of obtaining brush pressure.


PULL PARALLEL WITH SIDES OF BRUSH BOX
SPRING BALANCE
HUB & LEVER
SPRING
PIGTAIL LEAD
TAKE SPRING READING WHEN SLIP OF PAPER MAY BE DRAWN FROM BETWEEN BRUSH AND COMMUTATOR
REACTION SURFACE
BRUSH
COMMUTATOR OR COLLECTOR RING

Cross section of a typical shovel generator.



chances are that commutation can be helped by stoning and truing up the commutator surface.

On the other hand, if a generator is commutating well, considerable runout can be tolerated until a scheduled shut down can be arranged. When out-of-roundness exceeds 0.008 in., it is usually advisable to use a cutting tool or a mechanically sturdy, steady rest to true up the commutator surface. This, of course, depends upon the steadiness and the skill of the hand that holds the stone. Unless it is done by an expert, hand stoning can often increase general egg-shaped out-of-roundness, and should therefore be applied with care. It works quite well for bar-to-bar roughness. In hand stoning there is no substitute for skill and experience.

Brush Chatter Another frequent symptom indicating trouble is brush chatter, which can usually be recognized by a chattering noise, and can be felt by holding an insulated fiber stick against the top end of the brush and noting the radial vibration. Among the many causes of brush chatter, the most frequent are the following: poor reaction surface on the brushholder, improper spacing between brushholder and commutator, high mica fins, a rough commutator, bent brush clips or brushholder spring arms, and improper brush pressure.

Brushholders found on d.c. machinery vary quite widely. Years have brought progress in design, and opinions differ as to the best design for this particular application. As brushholders differ, so must also the maintenance given them.

Brush pressure must be maintained within certain limits to avoid brush chatter and to maintain the proper film on the commutator. Some recent designs of brushholders have non-adjustable springs, which hold proper pressure throughout the life of the brush. Others can be adjusted, so that pressure can be maintained by setting up spring tension to a tighter notch as the brush wears down. (See drawing on page 92.) Brush pressure should be maintained at 3 to 5 p.s.i.

On generators having the V-type of holder, the radial spacing of the brushholder to the commutator is important. It should be maintained at about .075 in. or enough to give about 1/16 in. circumferential spacing between the toes of the brushes in one holder. As the commutator wears down, the brushholders must be adjusted to maintain this spacing. On motors having radial holders, this radial spacing between brushholder and commutator is less important.

A common trouble experienced on brushholders is the carbon dust

(ALL READINGS IN MILS OR THOUSANDTHS OF AN INCH)

TABLE 1

Feeler Position	Coupling Position 0 Right	0 Top	0 Left	0 Bottom
Right	12	14	13	14
Top	12	13	14	14
Left	13	14	13	15
Bottom	13	13	14	15

Coupling in line. Gradually changing readings, indicate coupling is opening slightly with rotation.

TABLE 2

Feeler Position	Coupling Position 0 Right	0 Top	0 Left	0 Bottom
Right	12*	14*	14*	16*
Top	15	17	17	19
Left	18*	21*	20	23*
Bottom	15	18	17	20

Coupling out of line sideways. Note that right and left readings* show constant difference of 6 to 7 thousandths; top and bottom readings all right.

TABLE 3

Feeler Postion	Coupling Position 0 Right	0 Top	0 Left	0 Bottom
Right	14	14	16	17
Top	10*	10*	11*	12*
Left	15	14	17	17
Bottom	19*	19*	22*	22*

Coupling out of line vertically. Note that top and bottom readings* show constant difference of 9 to 10 thousandths; left and right readings all right.

TABLE 4

Feeler Position	Coupling Position 0 Right	0 Top	0 Left	0 Bottom
Right	14	11*	16	20*
Top	18*	15	11*	16
Left	14	19*	15	12*
Bottom	10*	16	20*	15

Bad coupling face indicated. Note how tight and loose spots* travel with rotation of coupling. Necessary to remove both rotors and true-up coupling faces.

Chart showing typical coupling alignment readings with diagnoses of trouble indicated.

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BEST BUY IN NEW AND USED EQUIPMENT

Enter 94 on card, page 97

and dirt which accumulates around the brushes, causing them to stick in the holders. Frequent and regular blowing out of the brush rigging will minimize this trouble and permit more reliable service.

Vibration Mechanical vibration is a very common symptom of trouble for which all maintenance men should be watchful. The most common causes for vibration are unbalance, misalignment, and bearing failure.

All rotating parts are carefully balanced and aligned at the factory. Accurate balance and alignment, so essential to good generator operation, should be checked, and refined if necessary, whenever an armature is replaced. Vibration which is traced to unbalance will probably be caused by dirt accumulation in the winding or by loosened or partially failed end-turn assembly which has allowed the windings to shift.

Coupling misalignment, a very frequent reason for vibration, can result from rough handling during shipment, poor alignment in replacing spare units, bad coupling faces on replacement coupling halves, or shifting of units during rough digging conditions. Flexible couplings will allow a small amount of misalignment but probably not as much as allowed by the coupling manufacturer. It is usually wise to hold this misalignment to the minimum.

Solid couplings must be held more accurately in alignment. This can be checked by spreading the coupling about 15 to 20 mils and measuring the distance between faces at four equally spaced points after each one-quarter of a complete revolution. Readings at each position should not vary more than .002 in. (See accompanying alignment chart, page 93.)

Failed bearings will cause vibration proportional in severity to the degree of failure. A scratched or dirty ball will usually not produce much vibration and will probably continue to operate for a limited, but uncertain period of time. It can be detected by touching a listening rod to the bearing housing and to your ear. A definite and rhythmic clicking sound can be heard. A cracked or broken ball will usually cause vibration too severe to operate at all.

Operator Technique There is an additional factor which is not really a part of maintenance, but yet it is quite closely associated with maintenance. It is the factor of operator technique. Technique varies quite widely with operators. Some move the controls with smooth, definite, sure movements, knowing how to get the most power out of the equipment. Others, often referred to as "handle jockeys," move the controls back and forth, causing the load to change continually. These continually changing loads produce excessive sparking for a given amount of work done and hence invite high commutator maintenance.

The "handle jockey" is usually inexperienced or lacks understanding of the electrical equipment. This situation can often be improved by operator education, increased understanding and experience.

Maintenance Schedule Any maintenance program, in order to be effective, must be thorough; and checking must be done at regular intervals. Perhaps the best way to start a good program is to establish a definite time when all machines can be shut down and thoroughly blown out to remove accumulations of dirt and carbon dust from all windings and brush rigging. At the same time, a check of insulation resistance can be made by taking a megger reading of all windings. Approaching failure can thus be discovered and often avoided. Sometimes a low megger reading can be corrected by simply blowing the dirt out of the windings with clean dry air. At other times a dip and bake is required to restore the vitality of insulating varnishes.

As is true in other fields, there is no substitute for experience. In shovel operation, experience applies to all phases, including operator skill, maintenance programs, shovel design, application, and motor or generator design. Only through the complete co-ordination of these five factors can maximum output be realized from the electrical equipment now in use on power shovels.

HOWARD W. JARVIS, formerly a commodity advertising manager, has been named general advertising manager of the U. S. Gypsum Co.

Enter 95 on card, page 97 →

"Best machine I've ever seen on this kind of job!"

H. H. RICHIE, QUARRY SUPT.
CHARLES W. BARGER & SON

Hard work in a limestone quarry near Lexington, Va., is the job Mr. Richie is talking about. The machine is a Cat No. 977 Traxcavator. See what he has to say about it:

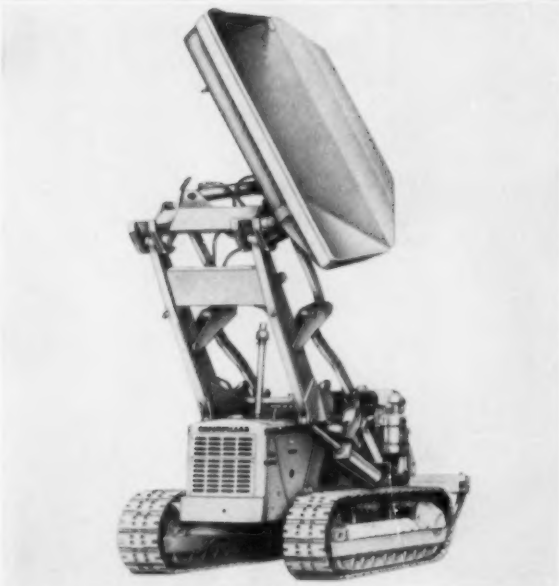
"We use the No. 977 for a wide variety of jobs. The primary one, of course, is loading trucks. It loads about 600 to 650 tons per day. We have found it to be economical to operate, powerful enough to move large rock and easy to maintain.

"The No. 977 keeps the quarry bottom clean and level so that it drains well. And yet it keeps ahead of the trucks that are hauling. This is the best machine I've ever seen on this kind of job."

The basic reason the No. 977 wins this kind of praise is that it has been built from the tracks up as an excavator-loader—not just a tractor with shovel tacked on. The No. 977 digs in hard, crowds the 2¼-yd. bucket full, fast. On his high, comfortable seat, the operator is in real command. He sees every bucket position. Controls are within easy reach—bucket control a one-hand operation.

Get the full story on the big No. 977—and the two smaller Traxcavators—from your Caterpillar Dealer. And find out about the revolutionary new Side Dump Bucket, available on all size Traxcavators. Let your Caterpillar Dealer demonstrate *on your job*—and show you how he is equipped to back up his sales with prompt service and parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



Side Dump Bucket, available on all size Traxcavators, cuts cycle time, reduces wear because of less turning, lets machine work in tighter areas. Also dumps forward.

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More Information, Please

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A BELT CONVEYOR REPAIR MANUAL just published by the *Automatic Vulcanizer Corporation* explains how belt repairs can be made without heat, pressure, or machines, by using Pang cold self-vulcanizing material. **(301)**

THE W-9 TERRALOADER, a 4-wheel-drive, rear-wheel power-steer tractor shovel, is featured in Bulletin CTS-111, just issued by the *J. I. Case Company.* Complete specifications and illustrations of job applications are included. **(302)**

WASHING AND CLASSIFYING EQUIPMENT for sand, gravel, crushed stone, and ore is described in a comprehensive 48-page catalog prepared by *Eagle Iron Works.* **(303)**

PRECISION MEASURING VALVE SYSTEMS for dispensing accurately measured quantities of fluid and semi-fluid materials are detailed in Bulletin No. 682, available from the *Lincoln Engineering Company.* **(304)**

CLARKSON FEEDER MODEL E for the controlled feeding of corrosive liquids is described in Bulletin No. 584, published by the *Clarkson Company.* The 4-page brochure features photos and data on new materials, design, and performance of the unit. **(305)**

THE AIRCOMATIC WELDING WIRE POCKET GUIDE, offered by the *Air Reduction Sales Company,* provides detailed information on welding wire for use with the Aircomatic welding process. The pocket guide presents the varieties of wire types, wire diameters, and packaging data, and also contains technical information. **(306)**

CARONDELET FOUNDRY COMPANY has published a booklet describing its facilities and engineering services for the production of gray iron castings and special alloys including stainless steels, nickel base and cobalt base alloys, alloyed gray irons, NiResist, and NiHards for corrosion, abrasion, and high temperature conditions. **(307)**

THE USE AND CARE OF WIRE ROPE is discussed in a handbook released by the *Wire Rope Corporation of America.* The 36-page book explains how to select the right rope for your specific needs; methods of socketing, splicing, and installation, and important safety points. **(308)**

THE AIR-FLOAT CONVEYOR, an air-gravity conveyor for dry, pulverulent materials, is described in an illustrated bulletin from the *Kennedy-Van Saun Manufacturing & Engineering Corporation.* Included is a description of the principles of the Air-Float method of materials handling. **(309)**

ALLIS-CHALMERS MODEL HD-6G TRACTOR SHOVEL is featured in a catalog covering design, engineering, construction, and operating features. Included are specifications and a list of the interchangeable attachments available for the unit. **(310)**

MODEL WL FEEDOWEIGHT for the automatic, continuous feeding, blending, and proportioning of materials by weight

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is detailed in a new bulletin prepared by the *Merrick Scale Manufacturing Company.* **(311)**

THE OVERDRAIN CLASSIFIER, a belt-type classifying device in which the slimes drain up and over the upcoming sands, is described in an illustrated brochure published by the *Hardinge Company, Inc.* **(312)**

TORNADO IMPACT GRAUNLATOR CRUSHER is illustrated in a bulletin offered by the *Werco Steel Company.* Included is an explanation of the crushing principle, specifications on the one-, two-, and three-stage crushers, and a typical screen analysis of one pass through a Tornado crusher. **(313)**

PORTABLE ROTARY DRILLING EQUIPMENT manufactured by the *Davey Compressor Company* is featured in a new catalog containing overall rig photos, sectional views of individual operating mechanisms, and action pictures. Complete specifications are presented on six standard rotary drills. **(314)**

MODEL 375 TRANSFER CONVEYORS, a series of pre-engineered and pre-fabricated belt conveyors ranging in length from 9 to 102 ft., are described in a bulletin available from *Barber-Greene.* Included is information which makes it possible for the prospective user to select the correct belt width and horsepower for his application. **(315)**

THE E-50 AUTOMATIC BAGGING SCALE is covered in a new bulletin issued by the *Richardson Scale Company.* Detailed are the E-50's design, capacities, gravity or power feed operation, and discharge. Engineering drawings and illustrations of suggested feeding arrangements are presented. **(316)**

AIR-MOTOR OPERATED LUBRICANT PUMPS are described in a catalog released by the *Lincoln Engineering Company.* The illustrated catalog covers design and engineering features for the complete series of Lincoln's 67 new "Power-Master" pumps and allied equipment. Lubricant-output performance and selection charts on the "Power-Master" series are included. **(317)**

MODEL 200 TRACTOR SHOVEL is the subject of Form 582, issued by the *N. P. Nelson Iron Works, Inc.* This catalog contains action photos and fully describes the features of the Model 200. **(318)**

THE PNEU-WEIGH CONTINUOUS WEIGHING SCALE is detailed in a bulletin prepared by the *Omega Machine Company,* division of B-I-F Industries, Inc. Bulletin No. 36-P1 describes its operation and available accessories, and gives complete dimensional drawings. **(319)**

MAX-LIFT CRANE HOOK BLOCKS are featured in a new booklet released by *The Upson-Walton Company.* Engineering data presented includes numbers of sheaves, sheave diameter, rope diameter, type and number of bearings, weights and dimensions for each size from 5 to 35 ton capacity. **(320)**

June ***PIT AND QUARRY*** **1958**

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- designed to provide crawler-like flotation and traction
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You'll get every job done faster and for less when you equip your units with the all-new wide-base General LCM tire. Built with General's exclusive stronger-than-steel Nygen cord, the LCM rolls over even the toughest job hazards . . . provides greater traction and flotation than ever before. Find out now how this big wide-base General LCM with Nygen can boost your job profits!

Specify Generals on your new equipment

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THE GENERAL TRUCK TIRE

The "Efficiency Experts" of Pit, Quarry and Mine...

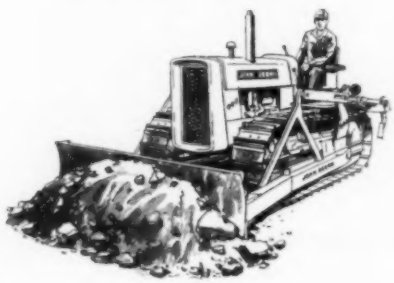
JOHN DEERE Wheel and Crawler Power Units

IT'S no wonder John Deere Wheel and Crawler Power Units are called "efficiency experts" wherever the big job is digging, loading, and hauling of dirt, sand, gravel, or other materials. That's a way of saying this equipment trims waste in every possible way, daily chalking up big savings for the owners.

It's common knowledge, for instance, that fuel costs drop when a John Deere goes on the job, thanks to amazingly efficient power plants famous for delivering so much for so little for so long. And it's just as widely known that these units have the convenient controls and operating responsiveness that mean getting the most out of every working hour—plus many construction features that give them greater stayability and assure greater savings in servicing and maintenance.

Your John Deere Industrial dealer will be glad to show you how you can trim operating waste, speed production with a John Deere Wheel or Crawler Power Unit. See him at the very next opportunity.

There's a John Deere Industrial Unit to suit your needs exactly, including Diesel-Scraper combinations (above), and Wheel and Crawler-Loader, Dozer, Shovel and other combinations (below).



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Kentucky Stone Producers Study Industry Problems

Marlon King, third from left, accepts the president's plaque as he assumes the association's top office. Others in the group are W. O. Snyder, executive secretary; Emil Berry, past-president; and Sam Nally, retiring president.

RESEARCH, agstone, specifications, and mutual problems of crushed stone and bituminous concrete producers were highlights of discussion during the recent annual meeting of the Kentucky Crushed Stone Association. The Kentucky Hotel, Louisville, was the site of the 1958 convention, which was held March 29.

During this meeting Marlon King, Canton, Ky., was elected to the office of president of the association. Mr. King, who had served as vice-president of the organization last year, succeeds Sam Nally in his present post. Other new officers include Richard E. Cooper, Somerset, vice-president; W. D. Milne, Louisville, secretary; and Margaret McD. Smith, Lexington, treasurer. W. O. Snyder, Frankfort, is executive secretary of the group.

Directors elected were W. E. Covington, Ashland; W. B. Paynter Jr., Middlesboro; Martin T. Smith, Frankfort; Norman Wiedmer, Hopkinsville; J. B. Allen, Winchester; and Powell Potts, Franklin. As retiring president, Mr. Nally became an *ex officio* member of the board of directors.

Among the representatives of national groups attending the convention were Joe Gray, engineering director of N.C.S.A., and Sam Omasta, vice-president, N.A.L.I. Mr. Gray discussed the work being done by the national group in research toward improving methods of economical production and in determining results of using various gradations of stone in several types of highway base courses and surfaces. It was pointed out that the current trend is toward smaller maximum sizes, which decreases productivity and increases the cost of crushing operations.

Several aspects of the soil conservation program, as these relate to and affect the production and application of agricultural limestone, were noted and discussed by Mr. Omasta.

N. B. Edwards, as a representative of the bituminous concrete plant mix operators, presented certain problems that affect both the crushed limestone and the asphalt plant mix industries.

Requirements for dense graded aggregates were discussed by David Arnall, Kentucky Department of Highways, who also described the position held by the highway department on that phase of construction at present. Informal discussion of Mr. Arnall's subject centered on gradation requirements as now set out in specifications.

Decreases in All Categories Seen in February Lime Sales

Domestic sales of open-market lime in February (546,047 short tons) decreased from the previous month's output, according to reports by producers to the U. S. Bureau of Mines. Decreases were noted in all major categories.

The accompanying table shows sales by types and major uses.

Lime Sold by Producers[1] in the United States, in Specified Periods of 1957-58, by Types and Major Uses in Short Tons

	JANUARY	FEBRUARY	JANUARY-FEBRUARY		
	1958	1958	1957	1958	1957
By types:					
Quicklime	485,768	434,232	587,285	920,000	1,227,852
Hydrated lime	144,265	111,815	138,670	256,080	264,923
Total[2]	630,033	546,047	725,955	1,176,080	1,492,775
By uses:					
Agricultural:					
Quicklime	2,002	2,357	1,957	4,359	2,857
Hydrated lime	5,267	4,842	10,184	10,109	16,102
Total	7,269	7,199	12,141	14,468	18,959
Building:					
Quicklime	10,871	6,691	10,255	17,562	20,455
Hydrated lime	72,987	46,525	66,447	119,512	122,949
Total	83,858	53,216	76,702	137,074	143,404
Chemical and other industrial:					
Quicklime	342,337	308,549	385,729	650,886	788,762
Hydrated lime	66,011	60,448	62,039	126,459	125,872
Total	408,348	368,997	447,768	777,345	914,634
Refractory (dead-burned dolomite)	130,558	116,635	189,344	247,193	415,778

[1] Also includes a small quantity of captive tonnage. The monthly canvass excludes the output of plants producing less than 10,000 tons a year.

[2] Approximately 60 percent of lime produced is high-calcium and 40 percent high-magnesium.

Buffalo R.M.C. Concern Enters Gravel Business

Pine Hill operating four sand-and-gravel plants

By WALTER E. TRAUFFER

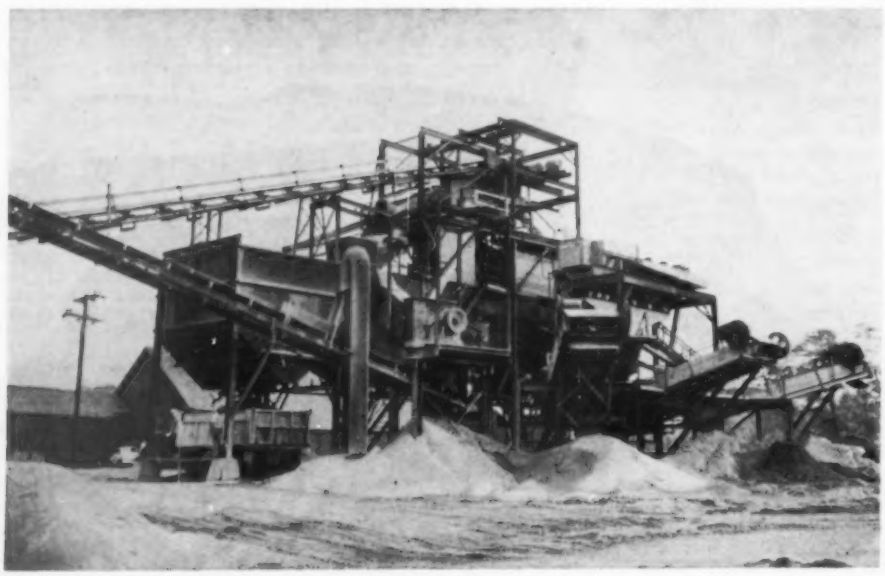
THE Pine Hill Concrete Mix Corporation of Buffalo, N. Y., has become an increasingly important factor in the aggregates and ready-mix fields in that area. Starting out in 1942 with one small ready-mix plant, this company now operates five ready-mix plants at three locations, with a fleet of over 100 truck-mixers. It also operates four sand-and-gravel washing plants, all within 5 miles of each other in the Lancaster-Clarence area east of Buffalo. These operations have a combined capacity of about 850 t.p.h., and about half of which is used by its own ready-mix plants.

Pine Hill's first venture into the aggregates field was early in 1953, when the firm took over the Genesee Sand & Gravel Company plant at Genesee and Shisler Roads. This facility was rebuilt into a 150-t.p.h. operation, and it is supplied by trucks from a dry pit.

Late in 1954 the company took over the three plants of the Buffalo Sand Company, two on Pavement Road and one at the Sterling pit at Stage and Billow Roads. The Sterling plant, which had been built in 1952 as a dredging operation, was changed to shovel and dragline recovery. This operation now has a capacity of 250 t.p.h. The older plant on Pavement Road was unchanged, and its capacity remains 200 t.p.h.

The main plant on Pavement Road, with which this article is chiefly concerned, a small 20-year-old operation, was gradually enlarged by the installation of larger conveyors and screens, more sand-classifying equipment, hoppers, and bins; it now has a capacity of 250 t.p.h.

The deposit is well graded and clean, with very little silt and no

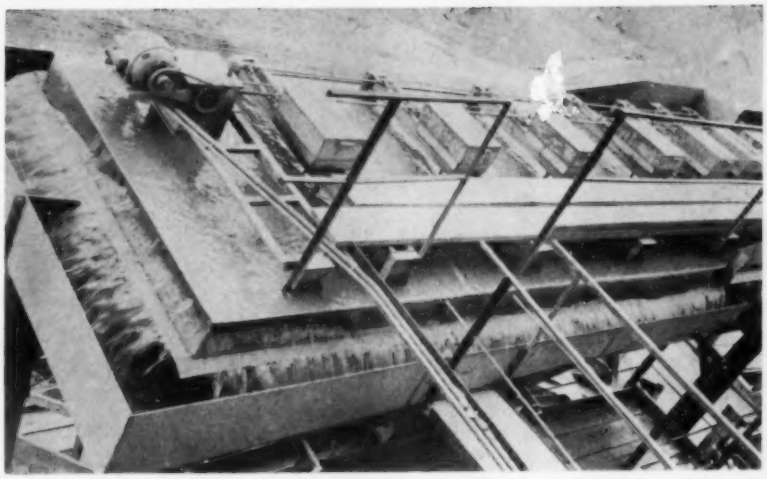


The recently-enlarged Pavement Road plant of the Pine Hill Concrete Mix Corporation, near Buffalo, N. Y., which is described in this article.

clay. It extends 20 ft. above ground water level and 5 to 6 ft. below. Loading is being done above the water line by a 1¾-cu. yd. Link-Belt shovel. In the winter one or two draglines are used to dig material out from under the water line. This material is piled on the bank to dry out for spring loading.

Raw material is trucked 5 to 6 miles to the plant, where it is discharged into one of three 150-ton concrete hoppers. A second hopper is used only when the material is running fine. Then about 10 to 15 percent of coarse material is brought from another pit, where a ¾-cu. yd. shovel is used. The third hopper is used for blending in coarse stone from waste piles. More than 500,000 tons of 1¼-in. to 6-in. and over has accumulated in piles, and this is being used up. Above each hopper is a 6-in. I-beam grizzly with 6-in. spacing.

Under each of the three hoppers is a Jeffrey-Traylor vibrating feeder

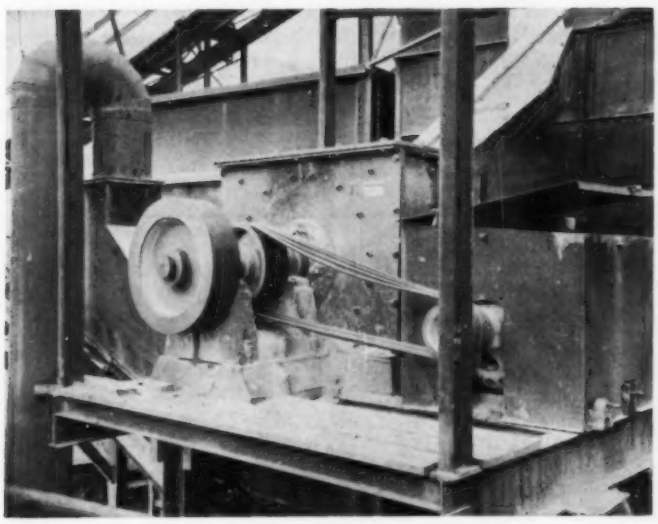


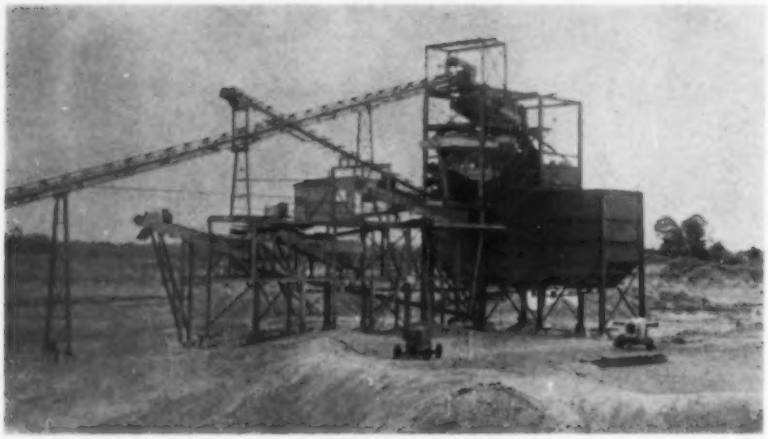
Top: These 24-ft. long, 7-valve scalping tanks can be adjusted to make any desired gradation of sand.

Right: The older Pavement Road plant, which has a capacity of 200 t.p.h.

Below: The 42-in. impact crusher which receives minus 6-in. material from a scalping screen.

Below, right: Two of the three 30-in. by 25-ft. double-screw washers used for final preparation of sand.





Left: The Sterling plant, built in 1952 and since converted from dredge to shovel and dragline recovery.

Below: The 150-t.p.h. Genesee plant, which was Pine Hill's first aggregate operation.

which can be adjusted to make any desired blend. They discharge on the 24-in. by 230-ft. main conveyor which inclines to the plant and discharges on a 4- by 16-ft. Screen Equipment Co. 3-deck screen. This unit usually has 1¼-, 11/16- and 3/16-in. openings.

Oversize from this screen goes to a 2- by 8-ft. Seco 1-deck screen with 6-in. cloth. The oversize—plus 6-in.—goes to a bin and is wasted. The minus 6-in. material goes by a chute to a 42-in. Stedman impact crusher. A 24-in. by 65-ft. belt conveyor takes this crushed gravel back to the main conveyor. Not over 20 percent of this material recirculates to the crusher.

The gravel off the second deck of the main screen (11/16- to 1¼-in.) is chuted to a 75-ton bin.

Material off the bottom deck of the main screen (3/16- to 11/16-in.) goes to a 4- by 16-ft. Seco 1-deck screen. This has 8 ft. of ¼-in. and 8 ft. of 5/16-in. cloth. Under the first screen section a pan feeds ¼- to 3/16-in. material into one of three 30-in. by 25-ft. Eagle Iron Works double-screw washers.

The ¼- to 5/16-in. gravel through the second screen section and the 5/16 to 11/16-in. passing over it go to separate 75-ton bins.

Material through the bottom deck of the main screen (3/16-in. minus) is chuted to a 24-ft., 7-valve Eagle scalping tank. This unit can be adjusted to give any desired gradation of product. Usually concrete sand is made, and this is fed to two of the three Eagle screw washers. The ¼- to 3/16-in. material described above is blended as it is rehandled by a crane to stockpiles. This product is allowed to drain for 24 hours before it is loaded out to insure constant moiture content.

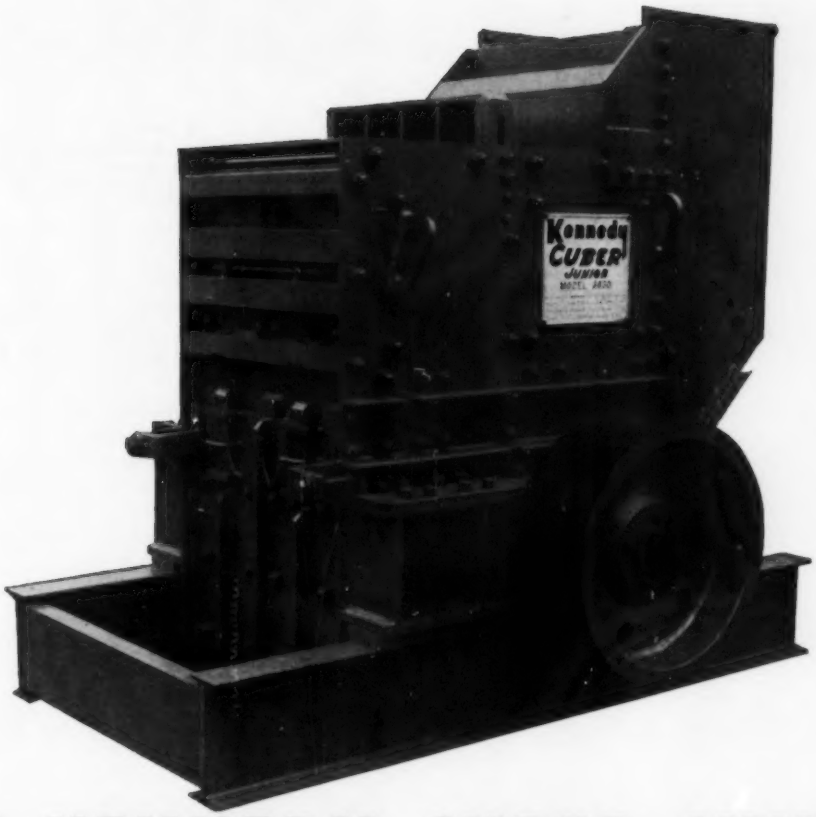
When a finer sand is desired, more fines are included in the feed to the plant, and the third screw is used to make the desired product.

All of the work at these plants was done with the attention to detail characteristic of this company's operations, under the general supervision of Ludwig F. Kahle, founder, president, and general manager of the company. This venture into aggregates production to supply the company's ready-mix plants is in a way repeating history. Mr. Kahle had long been a concrete contractor in Buffalo before he decided, in 1942, to enter the ready-mix business, primarily to supply his own needs. Carl E. Kahle is general superintendent, and Robert E. Jones is general manager of sand and gravel operations. The main office is at 2255 Bailey Ave., Buffalo.

Superior-Marquette Cement Manufacturing Company spokesmen have announced that the firm will spend $1,370,000 on improving its plant at Superior, Ohio.

Janesville Sand and Gravel Company's plans for expansion in 1958 include a new $175,000 plant at Janesville, Wis. The installation will be located across from its No. 5 plant and will operate with surge piles, rather than from bin-type storage.

The Norwood (N. Y.) quarry of the Barrett Division, Allied Chemical and Dye Corporation, New York, has received the corporation's group-4 safety award plaque for completing 1957 without a disabling injury.



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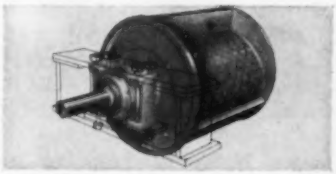

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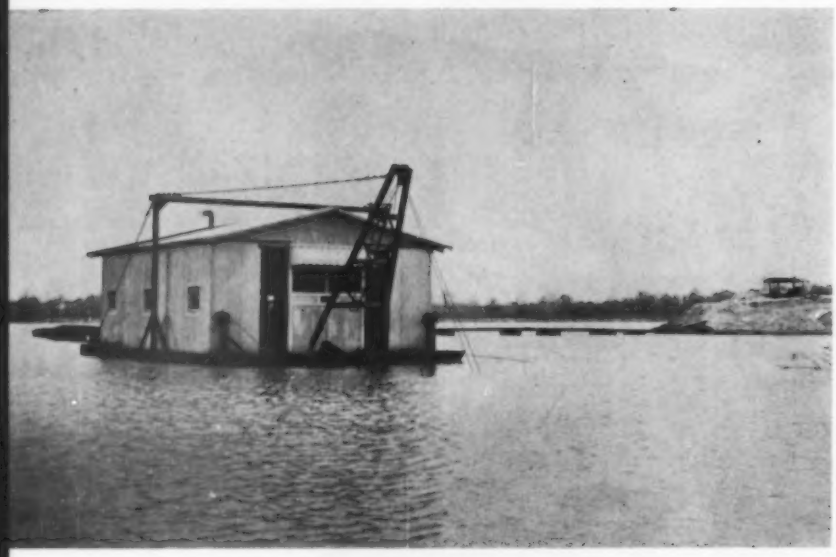


A pumping rate of approximately 175 t.p.h. has been maintained with this new dredge at the Allen Ready-Mix Concrete Company's plant in Memphis, Tenn.

Memphis Operator Builds Dredge

PRODUCTION of river sand at the rate of 175 t.p.h., almost double the former output, has resulted since the installation of a new dredge about 18 months ago by the Allen Ready-Mix Concrete Company, Memphis, Tenn.

From the dredging operations in a branch lake of the Wolf River, on the north side of Memphis, the company supplies sand for commercial sale, as well as to its ready-mix concrete plant.

Five years ago, Sid G. Allen and his son Bill purchased the plant. The original dredge, worn by years of pumping, became erratic in operation last year, which led to the decision to build a new unit tailored to present needs.

Designed by company officials, and built by Charles Organ, A. A. Tompkins and Bob Bland, company personnel, the new unit was begun in June, 1956, and completed in January, 1957. Containing six water-tight compartments, the all-welded steel hull has a 30-ft. beam; it is 41½ ft. long, and draws about 20 in. of water. Power for the entire dredge is supplied by a turbo-charged Caterpillar D375 diesel engine, rated at 325 continuous hp. All available power from this engine is utilized in the rig's operation.

At the clutch end of the engine is a pulley driving 12 V-belts through 16- and 32-in. sheaves that provides power for the sand pump, a Thomas Foundries type NHL unit with 10-in. suction and 8-in. discharge. On the front of the engine is a shaft and V-belt drive with flexible couplings which drive a 2-in. Gardner-Denver type BA centrifugal pump, used to prime the larger pump and lubricate its seals. At the extreme end of the flexible shaft is a Louis Allis self-regulated generator developing 220 volts a.c., from which power is furnished for a single drum hoist and the barge's lighting system. Fuel for the engine is supplied from a 900-gal. tank which holds sufficient diesel oil for two weeks of operation. The air starting system is supplied by an 8½ c.f.m. compressor.

Production of the old dredge had fallen below 100 t.p.h. when it was retired from service. The new unit maintains a steady flow of 150 to 175 cu. yd. per hour during an 8-hour day.

Wolf Lake, covering about 100 acres, has a sand deposit about 60 ft. deep under 30 ft. of water. At present, the company is dredging with a 45-ft. suction line, but plans have been made to add another 10 ft. to the length to extend the practical working depth.

Sand, and occasional gravel, picked up by the suction pipe is pumped through an 8-in., 500-ft. line to the shore. The company's screening plant is located near the water's edge and the dredge discharge line carries the sand mixture directly to the plant, where it is raised 55 ft. to a hopper. No additional boosting is necessary.

At the plant, a 70-hp. Cummins engine pumps water to maintain the fluid state of the mixture. From the hopper, the material flows by gravity to a screen which scalps any mate-

rial larger than ½ in. in diameter. The slurry then passes to a 5/16-in. screen, where pea gravel is removed, leaving only sand of ¼ in. and down.

The remaining material is directed onto an elevated wooden flume, from which, at intervals, concrete, plaster, and brick sand are screened off and discharged onto piles located below the flume. Any remaining material is allowed to drop off the end of the flume, where the water drains off, leaving a pile of fine tailings.

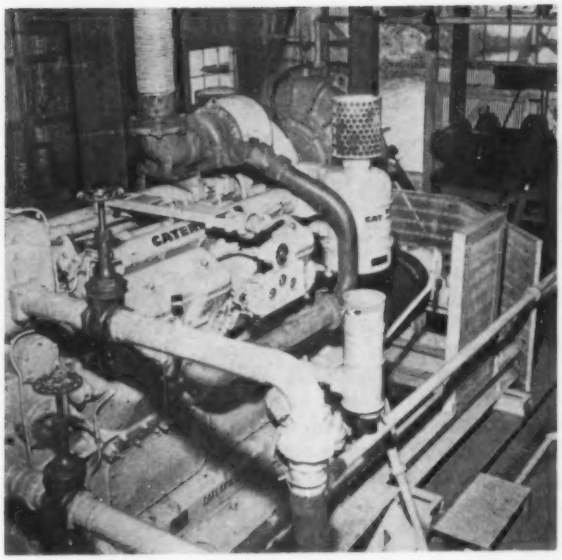
Stockpiling the graded sand from the stacks under the flume is handled by a Caterpillar D318-powered Marion 32M crawler crane with a ¾-cu. yd. clamshell bucket. This unit moves the sand to larger stockpiles from which material is drawn to supply the company's needs. On the other side of the stockpiles, two Insley type L cranes with ¾-cu. yd. clamshell buckets load sand into 50-ton rail hopper cars for shipment; these units also load trucks.

The stockpiles are cleaned up and maintained by a Caterpillar D7 tractor with a bulldozer which operates around the piles and also cleans up near the cranes. Plant road maintenance is handled by a Galion motor grader.

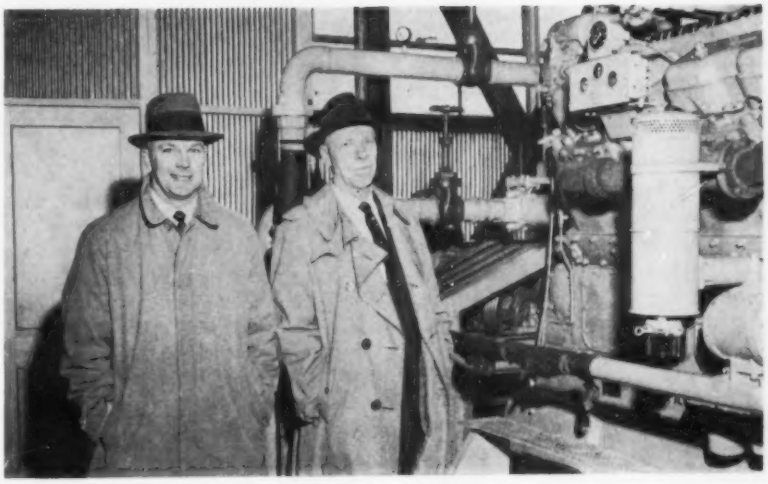
Sand destined for the company's ready-mixed concrete plant is loaded into 4-cu. yd. Mack dump trucks for haulage to the latter facility. A 1-cu. yd. Marion crane, powered by a Cat D4600 engine, loads the plant feed hopper with sand and coarse aggregates. Producing about 600 cu. yd. of ready-mixed concrete in an 8-hour day, the plant uses about ⅕ of the dredge output.

The ready-mix is delivered by 16 Mack trucks equipped with 6-cu. yd. Rex mixers. All of the road equipment is provided with two-way radio.

The key to the continued high production of Allen Ready-Mix Concrete is the dredge, which has raised sand output and maintained it at a level that would allow keeping pace with the growing material orders at the Allen plant.



Power requirements of all equipment on the dredge are met by this 325-hp. turbocharged diesel engine.



Above: Bill Allen, left, and his father Sid Allen look over the pumping and drive equipment on the dredge.

An overall view of the Allen plant site. The new dredge supplies all the sand used in this operation.

Preliminary 1957 Nonmetals Reports On Eight Western States

Nevada The value of Nevada's mineral production in 1957, lowest since 1953, dropped sharply to an estimated $83,663,000 from the all time peak of $126,235,000 in 1956. This slump was attributed largely to the cutbacks in mine production of tungsten, copper, lead, and zinc. Among the metals and metallic ores produced in Nevada, only gold and manganese showed advances in output, compared with 1956. In the nonmetallic minerals group, preliminary canvassing of the industry indicated that there were declines, of variable magnitudes, in the production of several materials in this category. The notable exceptions were sand and gravel, perlite, diatomite, and salt which experienced major advances; volcanic cinder and sulphur ore had moderate increases.

Estimates provided by individual producers, governmental agencies, and transportation companies, indicated increased sand and gravel production in 1957, about 15 percent above the previous year. Highway construction by state and county agencies, and reclamation work by federal agencies, absorbed most of this production. The Overton area of Clark County was a major source of molding sand. The 1957 production was about 60 percent of that in 1956, in that the glass sand shipments suffered through competition with California producers, due to the freight differential. There was little change in the quantity and value of stone produced in the state during the year. A large percentage of the output was credited to miscellaneous stone used as fill.

Shipments of lime, gypsum, and clay were appreciably less than in 1956. The output of lime and gypsum, which are more or less closely associated with dwelling unit construction, reflected the decline of this activity in southern California inasmuch as large tonnages of these materials are normally shipped to that area. The demand for clay products fell off locally. Although shipments of crude gypsum were down, compared to 1956, one southern Nevada producer had increased production in 1957 in order to supply a new company-owned wallboard plant in California. Nevada's 1957 clay production conformed to the demand for common brick, and while the output increased slightly in the Reno area, there was a marked drop in the Las Vegas area. Clay production for the state decreased substantially as only minor tonnages of the special clays and fuller's earth were shipped to California users.

The output of crude and ground barite declined noticeably below 1956 figures. Large tonnages normally shipped to the Gulf States did not materialize in 1957. The tonnages of crude barite shipped from Nevada pits to California grinders also decreased during the year. Production of acid-grade fluorspar dropped, compared to the previous year.

Of the six nonmetallic minerals with production increases in 1957, diatomite, perlite, and pumice had the most marked advances. The yield of diatomite in 1957 was about 5 percent above that in 1956. Nearly all Nevada diatomite production was shipped out of state. Lincoln County was the source of the substantially increased tonnage of crude perlite, about 30 percent, in 1957. Most of the crude production was shipped to expanding plants outside the state and used as lightweight and plaster aggregate. There was a 10 percent increase in the combined outputs of pumice and volcanic cinder in 1957, used as concrete aggregate, compared to that of the previous year.

Tonnages of brucite shipped to eastern plants and of magnesite calcined at magnesia plants, declined about 5 percent from 1956 figures. However, the tonnage of magnesite mined, calcined, and shipped for export was comparable to that in the previous year. The 1957 talc and soapstone production, from Esmeralda County, about equaled the 1956 output. All of the mined material was shipped to California grinding plants.

Arizona Value of mineral production in Arizona (exclusive of uranium) took a decided drop (25 percent) in 1957, from $479,600,000 in 1956 to $360,600,000 in 1957. Most of this decline resulted from a drop in the value of metal output, specifically copper, which fell $122,500,000.

The value of nonmetal output for use in the construction, chemical ceramic, and fertilizer industries in the state in 1957 increased slightly ($400,000) above the 1956 level. A reduction in the quantity of sand

Mineral Production in Nevada, 1956 and 1957 (estimate)
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956		1957 (estimate)	
	Short Tons (unless otherwise stated)	Value	Short Tons (unless otherwise stated)	Value
Barite (crude)	178,440	$ 1,066,930	97,600	$ 583,600
Clays	13,960	31,806	11,000	25,000
Gypsum	790,356	2,700,708	733,000	2,507,000
Pumice, pumicite and volcanic cinder	11,534	34,516	13,000	38,900
Sand and gravel	4,686,513	4,568,693	5,300,000	5,200,000
Stone	1,401,169	2,280,778	1,500,000	2,500,000
Talc and soapstone	10,540	98,506	10,300	96,000

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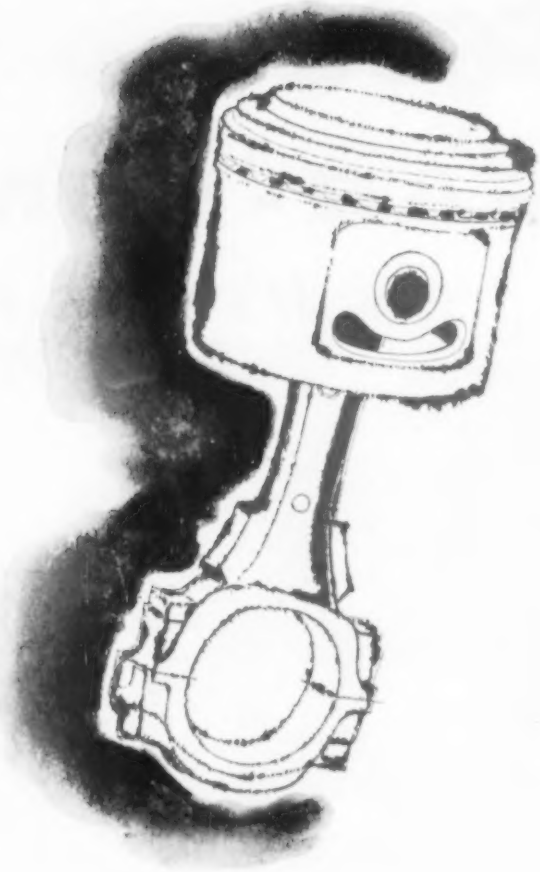

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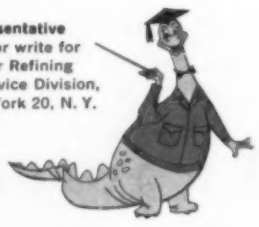

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and gravel and stone used for construction was more than offset by an increased quantity of this material used for highway construction.

Arizona continued to be a minor source of nonmetal-mineral production during 1957, and the total value of output for this group of commodities was estimated at $20,600,000, or 6 percent of the total value for all commodities. Comparable figures for 1956 were $20,200,000, or 4 percent of the total value of state production.

Construction materials—asbestos, cement, clays, gypsum, perlite, sand and gravel, and stone—accounted for $19,700,000 in 1957, compared with $19,100,000 in 1956. Despite the overall increase in 1957, significant declines in value of output of gypsum, lime, and perlite were reported, and only small increases were noted for cement, clays, sand and gravel, and stone. The tapering off of the building boom was the reason for the lack of continued gains in output for construction materials. Increased highway-construction activity of the state highway department balanced what otherwise would have been an overall decline in production of this group of commodities.

The November 30, 1957, report of the Federal Bureau of Public Roads showed that Arizona ranked tenth in the nation in mileage of all construction underway on the system, with 61.9 miles. In all milage completed on the 41,000-mile superhighway network, Arizona ranked ninth, with 46.6 miles. For total work programmed—in all stages of planning and construction since the new Federal-Aid road effort began on July 1, 1956—Arizona was fifth, with 187.9 miles. But in construction-contract mileage approved in those 17 months, through November 1957, Arizona tied with Washington for eleventh place, with 87.1 miles.

Mineral Production in Arizona 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Beryllium concentrate — gross weight	6	$ 2,614	5	$ 1,750
Gypsum (crude)	95,666	366,115	80,400	320,900
Lime	126,876	1,755,774	136,700	1,747,900
Perlite (crude)	15,928	108,404	1,300	7,620
Pumice	114,609	366,095	113,400	551,700
Rare-earth minerals—lb.	150	450	.....	.....
Sand and gravel	7,932,500	6,166,750	8,000,000	6,240,000
Stone	1,623,029	2,474,519	1,670,000	2,540,000

Colorado Mineral output in Colorado (exclusive of uranium) continued to climb in 1957 and marked the eleventh successive year of increases. However, the total value of $325,200,000 for the state was only 5 percent above 1956, and had it not been for greater production in the mineral-fuels group and a small gain in nonmetal output, the total value of all minerals would have dropped below the 1955 level.

A reduction in industrial and residential construction, as well as a tapering off in the production of minerals for chemical use during 1957, tended to slow down what had been a rapid annual increase in the output of nonmetals in Colorado for a number of years. The total value of nonmetal production in 1957 was estimated at $36,900,000, compared with $34,100,000 in 1956.

The consumption of construction materials by the building trades declined slightly during the year. Production of gypsum, pumice, and mica used in the manufacture of wallboard, plaster products, concrete block, and roofing products ranged from 28 to 53 percent below 1956 levels. On the other hand, shipments of cement increased slightly, along with small gains for clay, perlite, sand and gravel, and stone. Had it not been for increased highway construction activities of the Colorado Department of Highways, there would have been a significant decline in the value of nonmetal output.

During calendar year 1957 the Colorado Department of Highways let 135 contracts covering 617.4 miles of roads at a total cost of $67,100,000 which included right-of-way acquisition. In addition the department also spent $1,200,000 on betterment projects which were paid for out of its maintenance appropriation. The work done by highway department crews comprised 75 projects covering 322.2 miles of roads.

This was the biggest year in highway work in the history of the state. Total expenditures (for the 210 projects costing $68,300,000) were $12,000,000 to $13,000,000 over the budgetary allotment and were possible only because of previously budgeted projects which had not been put under contract. The previous record year was 1956, when 111 contracts were let covering 560 miles at a total cost of $48,400,000.

With regard to the Federal Interstate Highway System. Colorado has been allotted 676 miles of roads. The November 30, 1957, report of the Federal Bureau of Public Roads showed that Colorado ranked fourth in the nation in mileage of all construction under way on the system,

Mineral Production in Colorado 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Clays	522,573	1,215,305	550,000	1,276,000
Feldspar (crude)—long tons	47,014	327,276	44,000	307,000
Gypsum (crude)	88,026	352,761	74,000	296,000
Mica:				
Sheet—lb.	8	126	4	60
Scrap	517	7,596	370	5,440
Pumice	50,015	109,206	23,400	41,100
Rare-earth minerals—lb.	32,145	23,152	34,700	25,000
Sand and gravel	15,152,000	11,081,625	16,000,000	12,500,000
Stone	2,250,168	5,216,641	2,500,000	5,500,000

with 103.2 miles. In all mileage completed on the 41,000-mile superhighway network, Colorado was eleventh, with 39.2 miles. For total work programmed—in all stages of planning and construction—since the new Federal-Aid road effort began on July 1, 1956, Colorado was tenth, with 162.5 miles. But in construction contract mileage approved in those 17 months—through November 1957—Colorado was fifth, with 118.3 miles.

Although the value of minerals produced and used by the chemical industry in 1957 was only 4 percent greater than 1956, a 6 percent decrease in feldspar production emphasized the problems faced by the small mine operator, who is the major source of feldspar in Colorado. Because of increasing costs of production and transportation and a relatively stable price for crude feldspar, many operators have discontinued mining. The loss of qualified miners to this industry is becoming a serious problem and has already affected the supply of crude feldspar from Colorado mines to grinding plants.

New Mexico Most segments of the mineral industry of New Mexico, which have been plagued for a number of years with a fluctuating price for many of its principal products and a continuing rise in the cost of production, were particularly hard hit in 1957. The list of commodities for which there was a decrease in value included such major metals as copper, molybdenum, lead, and zinc. Other minerals which also declined in value were barite, beryl, carbon dioxide, clays, iron ore, helium, lime, sheet mica, silver, sulphur, and tungsten. On the other hand, significant gains in output, as well as value, are shown for petroleum, natural gas, and natural-gas liquids, and also smaller increases for manganese, magnesium compounds, scrap mica, perlite, potash, pumice, salt, sand and vanadium.

The total value for the nonmetal group in New Mexico during 1957 continued to climb, reaching $87,300,000, compared with $83,600,000 in 1956. Despite the 4 percent gain, a number of problems faced by this segment of the mineral industry were accentuated. The value of construction materials as a group increased $968,000, or 10 percent over 1956; however, several commodities declined in value. Clays, mainly brick clay, barite for oil-well drilling, and mica had a lower value in 1957 than in 1956. On the other hand, pumice, perlite, sand and gravel, and stone, showed moderate increases.

The sustaining force behind the slight overall gain for the nonmetals was the increased highway construction activity of the New Mexico State Highway Department. In its November 30, 1957, report, the Federal Bureau of Public Roads showed that New Mexico ranked sixth in the nation in mileage of all construction under way on the system, with 95.7 miles. In all mileage completed on the 41,000-mile superhighway network, New Mexico was fourteenth, with 35.5 miles. For total work programmed — in all stages of planning and construction —since the new Federal-Aid road effort began on July 1, 1956, New Mexico was thirteenth, with 139.0 miles. But in construction contract mileage approved in those 17 months — through November 1957 —New Mexico was third with 139 miles. However, in December the highway department stopped future projects on the interstate program until the right-of-way costs are reduced to a reasonable level. The department's action stemmed from higher-than-normal costs on projects in Sandoval and Guadalupe counties, resulting from inflated values for land needed for right-of-way.

Chemical and fertilizer materials —lime, potash, salt, magnesium compounds, and sulphur—were valued at $77,200,000, only 4 percent greater than in 1956. Because of the decline in the tonnages of copper ore mined, the quantity of lime produced was 8,800 tons less than in 1956. Sales of elemental sulphur also dropped in 1957. In comparison, production of potash, the principal nonmetal in the state, increased in conjunction with a stronger demand from the agricultural segment of the nation's potash consumers. Gains were also reported by producers of salt and magnesium compounds.

Major events which affected the nonmetal-mineral industry of New Mexico included the beginning of construction of the first cement plant in the state. Ideal Cement Company began site preparation work in January at Tijeras, 12 miles east of Albuquerque, for a million-barrel-per-day dry-process plant. This facility will be a 1-kiln operation and will include the latest improvements and techniques.

Nebraska Mineral production in Nebraska in 1957 was valued at $87,600,000, a 22 percent advance, compared with 1956, according to the U.S. Bureau of Mines.

Mineral fuels accounted for nearly three-quarters of the total value of mineral production. Gains were noted in the quantity and value of all nonmetallic minerals produced in 1957. The rise in value ranged from 8 percent for cement to only 1 percent for stone.

Nonmetals as a group increased 7 percent in value in 1957, compared with 1956. Gains were recorded in 1957 in the value of cement (8 percent), sand and gravel (7 percent), clays (4 percent), pumice (3 percent), and stone (1 percent). Increases in quantity, except for pum-

Mineral Production in New Mexico 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Barite	4,059	$ 81,180	3,000	$ 60,000
Clays	39,623	95,386	37,000	89,000
Lime	30,771	372,641	22,000	268,000
Mica:				
Sheet—lb.	6,247	52,566	2,000	17,000
Scrap	767	22,213	1,600	40,000
Perlite (crude)	167,705	1,270,993	175,000	1,327,000
Potassium salts (K_2O equivalent)	1,930,754	72,802,302	2,028,000	75,105,000
Pumice	292,330	667,146	312,000	722,000
Salt	57,156	501,040	60,000	526,000
Sand and gravel	6,054,500	5,775,900	7,000,000	6,650,000

ice, which decreased slightly, were of similar magnitude. The rise in production of cement and sand and gravel are indicative of the progress in construction of the national system of interstate and defense highways. According to a report of the Bureau of Public Roads, United States Department of Commerce, in 17 months, since the program was authorized (July 1, 1956 to December 1, 1957), Nebraska had programmed 11.6 miles of the highways at a cost of $13,600,000, and 11.3 miles was under contract or had been completed.

Mineral Production in Nebraska, 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Clays	153,137	$ 153,549	155,000	$ 160,000
Sand and gravel	10,350,000	7,403,925	11,000,000	7,900,000
Stone	3,062,691	4,141,813	3,100,000	4,200,000

Wyoming The $40,900,000 increase in the value of all minerals produced in Wyoming during 1957 was due almost entirely to a gain in the value of liquid-mineral fuels, according to the U.S. Bureau of Mines. The value of mineral production in 1957 was estimated at $355,700,000 (exclusive of uranium), compared with $314,800,000 in 1956.

The combined value of metals and nonmetals totaled $36,700,000 or 10 percent of the value for all minerals. In this grouping, nonmetal output, value at $31,500,000, was by far the most important. However, for the first time in many years the nonmetals group value failed to set a new record and actually dropped 1 percent below comparable 1956 figures. This decline was due largely to a reduction in the production of bentonite.

The total value of nonmetals in Wyoming was $31,500,000 in 1957, a slight decline of 1 percent from 1956. A decline in the value of construction materials, clays, and gypsum, coupled with decreases for chemical and fertilizer materials, feldspar, and phosphate rock, tended to offset increased sales of other nonmetals. Sustained output of sodium carbonate and sulphur was the principal factor that kept the total value of mineral output for the nonmetal industry from falling considerably below 1956 levels. Small gains in output were also indicated for cement, pumice, sand and gravel, and stone, as well as for sodium sulphate.

In the construction material category increased highway-construction activity by the state highway department resulted in a small gain in sand and gravel output and offset the tapering-off in building construction. The Federal Bureau of Public Roads in its November 30, 1957 report indicated that Wyoming ranked fifth in the nation in mileage of all construction of the Federal interstate system, with 101.4 miles. In all mileage completed on the 41,000-mile superhighway network, Wyoming ranked eleventh, with 42.7 miles. For total work programmed in all stages of planning and construction since the new Federal-Aid road effort began on July 1, 1956, Wyoming ranked ninth, with 164.9 miles. In the construction contract mileage approved in those 17 months, through November, 1957, Wyoming was sixth, with 110.6 miles.

Mineral Production in Wyoming 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Clays	1,053,452	$ 11,831,981	780,000	$ 10,832,000
Feldspar—long tons	1,201	8,195	300	2,000
Gypsum (crude)	11,380	45,521	[2]	[2]
Phosphate rock—long tons	119,230	721,341	100,000	550,000
Pumice	45,517	37,859	49,254	40,400
Sand and gravel	3,904,000	2,935,500	4,000,000	3,000,000
Sodium carbonates	[4]337,851	[4]8,345,000	345,809	8,646,270
Stone	1,332,866	2,076,282	1,400,000	2,200,000
Sulphur (elemental)—long tons	121,161	3,214,428	130,000	3,457,000

[2] Figure withheld to avoid disclosure of individual company confidential data;

North Dakota Mineral production in North Dakota in 1957, valued at $57,000,000, gained 7 percent, compared with 1956 according to the U. S. Bureau of Mines. Mineral fuels, of which petroleum was the most important single commodity, continued to contribute the major portion of the value of mineral production.

Nonmetals contributed 10 percent to the value of the North Dakota's production, and as a group these increased 23 percent in value, compared with 1956. The value of clays advanced 15 percent; sand and gravel, 18 percent; stone, 3 percent; but pumice (scoria) decreased slightly, compared with 1956. The greatest gain was in the value of sulphur recovered from oil-well gas. The quantity and value of sulphur marketed in 1957 was six times greater than in 1956.

Production value of the nonmetals varied accordingly—clays for the manufacture of building brick, drain tile, and other heavy clay products increased 15 percent; sand and gravel for building and road construction increased 18 percent; and crushed stone used mainly for road construction increased 3 percent, compared with 1956. Pumice (scoria) produced for the construction of private roads remained approximately the same. Increase in the production of road-building materials reflects the beginning of construction of the interstate highway system.

According to a report issued by the Bureau of Public Roads, United States Department of Commerce, in 17 months since the national system of interstate and defense highway program was authorized (July 1, 1956 to December 1, 1957), 108.7 miles of highway at a cost of $26,000,000 had been programmed in North Dakota, and 66.6 miles was either under contract or had been completed, at a cost of $13,400,000.

Mineral Production in North Dakota 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Pumice	4,840	4,840	4,500	4,500
Sand and gravel	5,946,000	4,259,250	7,000,000	5,040,000
Stone	82,999	87,100	85,000	89,300
Sulphur—long tons	1,735	45,990	10,600	281,000

Utah The mineral industry was a weak spot in Utah's industries and economy in 1957, according to the U. S. Bureau of Mines. A $74,000,000 (20 percent) drop in the value of mineral production in 1957 (exclusive of uranium), compared with 1956, resulted mainly from an $80,800,000 (26 percent) decline in the value of metal output.

A $500,000 (2 percent) drop was recorded in 1957 for the total value of the nonmetals produced in Utah, compared with 1956. Use of these materials for building construction declined slightly. However, this was offset by increased highway construction and the building of the railroad causeway across the Great Salt Lake. The value of nonmetals produced for the chemical and fertilizer industries in the state increased slightly in 1957.

The nonmetals segment of the mineral industry of Utah was adversely affected by the overall decline in productive activity in the state. The value of nonmetal output in 1957 (without elimination of the duplication in value of limestone used for cement and lime manufacturing) dropped 2 percent to $22,300,000, compared with $22,800,000 in 1956. In the construction-material group, valued at $17,600,000, decreases in value were reported for cement, pumice, stone, and gypsum, amounting to $1,200,000. Small gains in output for clays (mainly halloysite) and perlite, as well as for sand and gravel, helped keep the value for this group from declining further.

In the highway-construction category (the major factor affecting sand and gravel production) the Utah Road Commission was not as active a participant with the national highway program as were most of the other Rock Mountain states. In its November 30 report the Federal Bureau of Public Roads showed that Utah ranked 45th in the nation in mileage of all construction underway on the inter-state system, with one-tenth of a mile. In all mileage completed on the 41,000-mile superhighway network, Utah ranked 24th, with 12.8 miles. For total work programmed—in all stages of planning and construction since the new Federal-Aid effort began on July 1, 1956—Utah was 24th, with 70.6 miles. In construction-contract mileage approved in those 17 months through November, 1957 Utah was 44th, with 4.7 miles.

South Dakota Mineral production in South Dakota in 1957 was valued at $39,700,000, a decrease of 5 percent, compared with 1956, according to estimates of the U. S. Bureau of Mines.

Value of all nonmetal commodities, with the exception of lime and sand and gravel, decreased in 1957. The greatest decline in value was in bentonite, reflecting the increased cost of mining from deposits in Meade County and the greater use of raw material from Wyoming as raw material for processing in South Dakota mills. Sand and gravel for road building was in greater demand as construction of the Interstate Highway System progressed.

Declines were recorded in 1957 in the value of all nonmetallic commodities except lime and sand and gravel, which increased moderately. Production of sand and gravel in 1957 increased 4 percent in quantity and 3 percent in value, compared with 1956. The gain, although slight, reflects the accelerated activity in road building through construction of interstate highways. According to a report issued by the Bureau of Public Roads, United States Department of Commerce, in 17 months since the program was approved (June 29, 1956 to December 1, 1957), South Dakota had programmed 66.3 miles of highway at an estimated cost of $29,800,000, and 34.8 miles costing $7,900,000 was under contract or had been completed.

Mineral Production in Utah, 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Fluorspar	10,581	265,449	13,000	360,000
Lime	55,110	829,772	52,000	805,000
Perlite (crude)	2,271	8,518	3,000	11,000
Phosphate rock—long tons	124,773	771,585	100,000	550,000
Pumice	44,769	329,603	3,000	23,000
Salt	183,701	1,471,080	200,000	1,600,000
Sand and gravel	5,835,500	4,475,700	6,000,000	4,620,000
Stone	2,321,636	3,298,006	2,200,000	3,124,000

Mineral Production in South Dakota 1956-57
(Excerpted from U. S. Bureau of Mines Data)

Mineral	1956 Short Tons (unless otherwise stated)	1956 Value	1957 (preliminary) Short Tons (unless otherwise stated)	1957 (preliminary) Value
Feldspar—long tons	45,226	288,843	40,000	255,600
Gypsum (crude)	15,794	63,176	13,300	53,200
Mica:				
Sheet—lb.	12,494	67,053	7,200	38,300
Scrap	1,268	31,224	1,200	28,000
Sand and gravel	12,539,000	8,423,050	13,000,000	8,710,000
Stone	2,200,421	5,724,758	2,000,000	5,200,000

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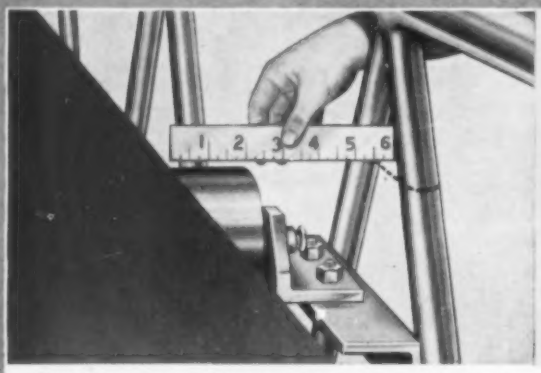
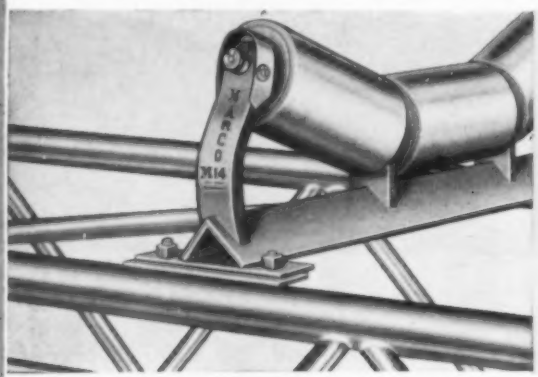
Exclusive conveyor features increase belt life by offering maximum protection against edge damage

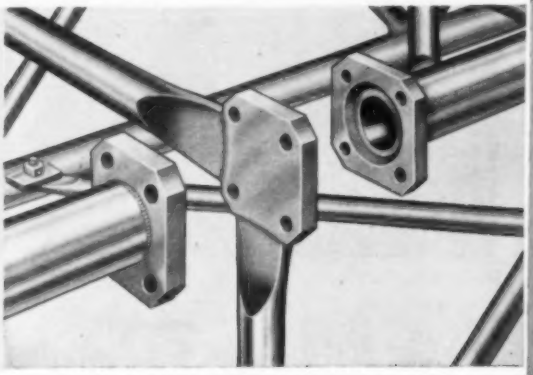


WIDER FRAME—MARCO Tubular Frames are widest in the industry. They provide 100% more space (5½") in the critical area—between belt edge and nearest frame member. Pedestal type return idler brackets are used, instead of hanger brackets that confine and damage belt.

WIDER FACE PULLEYS—MARCO is first with modern pulley specifications. 2" between belt and pulley edge—provides 100% greater protection than outmoded standards. Reduces possibility of belt destruction caused by "belt wandering" in high tension areas.



ALL TUBULAR MEMBERS—MARCO Tubular Frames are more rigid. Constructed of the strongest known structural member, these frames are modern—and resist material and water build-up. Sharp "belt cutting" edges are eliminated with this exclusive construction.



RIGID JOINT CONSTRUCTION—Another MARCO exclusive—4 bolts in each connection—16 in each joint. Not the usual 1 or 2 per connection. Joints are more rigid. Resists frame misalignment, simplifying belt training and increasing belt life.

Now, more than ever, conveyor belt represents the largest major repair or replacement expense in a conveyor installation. Realizing the extreme importance of this fact, MARCO has designed every conceivable belt saving idea into its Tubular Frame Conveyors.

MARCO is first to have all 4 of these proven belt protection features: a wider frame, wider face pulleys, all tubular members and the most rigid joint construction.

If wind, uneven loading, or factors beyond control should cause "belt-wandering", this exclusive conveyor design offers the operator the finest, most complete protection against belt "edge damage".

Increasing belt life by reducing belt "edge damage" is only one of the cost saving advantages in MARCO Tubular Frame Conveyors. Remember, your conveyors are not mere plant accessories—they deserve the attention of a specialized manufacturer offering modern specifications, carefully and properly designed to meet your most exacting requirements. For more information consult your MARCO Distributor or contact E. F. Marsh Engineering Co., St. Louis 10, Missouri.

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Appointments and Promotions

PETER WILLIAMSON has been elected a vice-president of the Bestwall Gypsum Company, Ardmore, Pa. A director since last October, Mr. Williamson is also a director and president of Bestwall Gypsum Company (Canada) Ltd., a wholly-owned subsidiary.

DONALD BAUER has joined Kaiser Gypsum, Oakland, Calif., as research engineer at the St. Helens (Oreg.) plant. He was formerly employed as a chemist in Pilot Rock, Oreg.

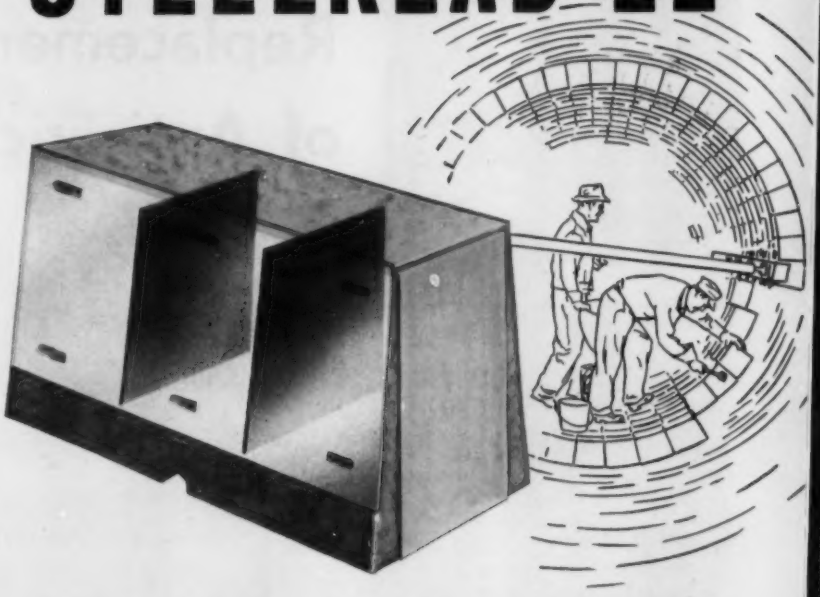
STANLEY H. HOHE has been appointed vice-president in charge of sales of Marble Cliff Quarries Company, Columbus, Ohio. The sales department will be under the direction of the following division managers: Frank Longabaugh, commercial; William Margraf, agricultural; William C. McMurray, ballast; and Charles Rary, metallurgical and lime.

HAROLD H. JAQUET, has been named president of the Pan-American Sulphur Company's Mexican subsidiary, Azufrera Panamericano, with offices in Mexico City and Jaltipan, Vera Cruz. Mr. Jaquet joined Pan-American Sulphur four years ago, after being with Jefferson Lake Sulphur for 21 years.

EDWARD R. STAINBACK, formerly dealer sales manager of the Canadian-Mid-East region, has been named general dealer sales manager by the United States Gypsum Company, Chicago, Ill. Mr. Stainback joined the company in 1936 in the Southeast division.

DEAN CANHAM, who was formerly with Kaiser Engineers as labor relations representative, has been appointed industrial relations superintendent for the Permanente Cement Company's Cushenbury plant near Lucerne Valley, Calif.

STEELKLAD-EE



The original internally plated brick

Through its program of continuous improvement in basic refractory brick, General Refractories has contributed to the phenomenal growth enjoyed by the portland cement industry.

Early in the period of this expansion, Grefco pioneered the development of basic brick. During the nineteen forties, Grefco STEELKLAD brick provided increased spalling resistance and still better refractory quality. And last year, continuing research and testing produced STEELKLAD-EE, Grefco's original, patented, internally plated brick for portland cement kilns. STEELKLAD-EE has now proved itself in numerous applications where it has demonstrated 25%-50% longer life than other basic brick. Its superiority has won a substantial and growing portion of the basic market.

The cut-away view above shows how the STEELKLAD-EE internal steel plates are molded right into the brick itself, making three bricks of one. These smaller refractory units are tremendously more resistant to the spalling and peeling actions characteristic of most basic brick on exposure to cyclical heating and cooling.

For expert advice on the applications of this outstanding new basic refractory in the portland cement industry, please consult your local Grefco representative. STEELKLAD-EE bricks are available at Grefco plants in Baltimore, Gary, Los Angeles, and in Smithville, Ontario.

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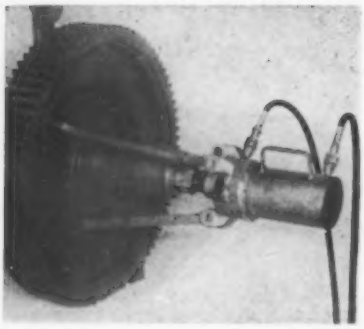
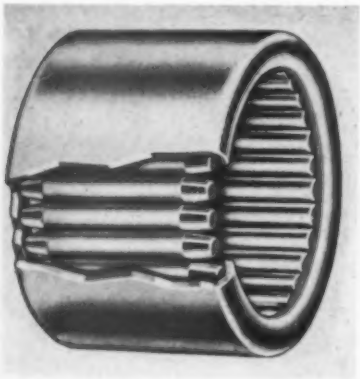


Hydraulic pullers can be used for the safe and efficient removal of bearings.

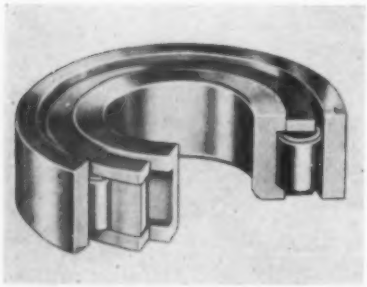
Replacement of Anti-Friction Bearings

By C. W. BORHO
Service Engineer
Service Department
Caterpillar Tractor Company

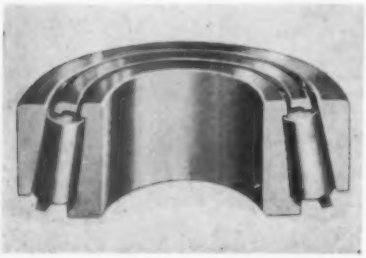
Anti-friction bearings are often ruined or discarded needlessly. You can save money by following these service suggestions.



The needle bearing is used frequently in control linkages to assure equalized wear of the bearing surfaces.



Straight roller bearings, designed to absorb radial loads, are commonly used in both transmission and final drive assemblies.



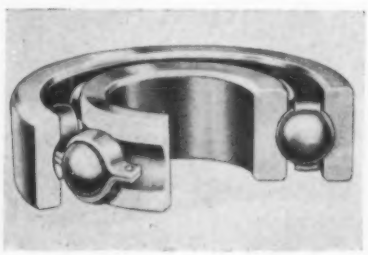
Tapered roller bearings, designed to absorb large radial and lateral thrust loads, are used in the final drives of crawler tractors.

THERE are five basic types of anti-friction bearings: needle, straight roller, tapered roller, ball, and ball thrust. Each has a specific application, although uses often overlap. The choice of a bearing used in original equipment is up to the designer of the assembly of which it is a part. When replacement becomes necessary, it is very risky to use *any* bearing just because it fits a shaft and bore. To guard against this possibility, consult the manufacturer's up-to-date parts catalog and install bearings by part numbers. Installing a "will fit" bearing is asking for trouble.

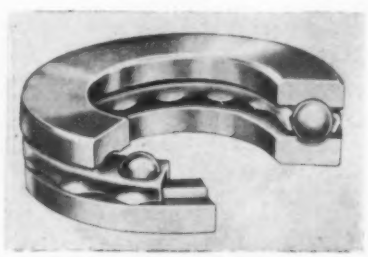
Foreign matter and lack of lubrication are the most frequent causes of bearing failure. In installing a new bearing, handle it with care. During manufacture and storage, bearings are protected with a coating of lubricant and packed inside a paper wrapper. This lubricant should not be washed from the bearing. It is virtually impossible to wash a bearing as clean as it was when the manufacturer lubricated it, as bearings are made in dirt-free surroundings.

Keep bearings in their original packaging until you are ready to install them. Touch the bearing as lit-

Ball bearings absorb both lateral and radial thrust; they are used in such applications as water pumps, fans, and power-take-off shafts.



Ball thrust bearings, sometimes used in governor and sheave groups, absorb lateral thrust.



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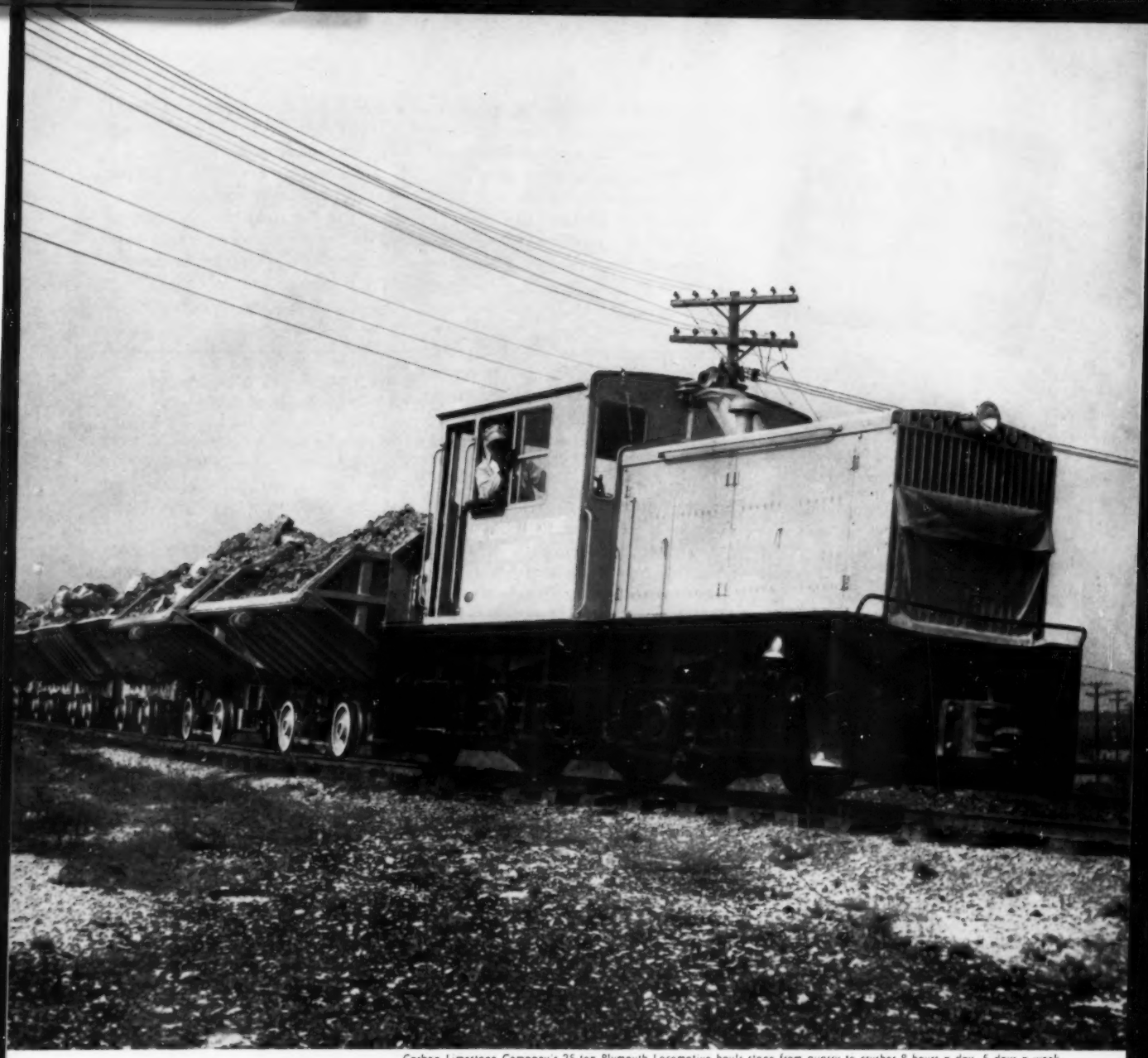

Carbon Limestone Company's 25-ton Plymouth Locomotive hauls stone from quarry to crusher 8 hours a day, 5 days a week.

"Plymouth diesel saves us up to $1000 a year"

"A highly dependable and very economical piece of equipment," states George H. Donaldson, President of Carbon Limestone Company, Hillsville, Pa., in describing his company's Plymouth Locomotive.

This diesel-powered narrow-gauge model hauls 14 cars of limestone weighing up to 200 tons per load, over a 4-mile route from quarry to crusher under rough operating conditions. The unit is equipped with Torqomotive (hydraulic torque-converter) drive which provides smoother starts, eliminates stalling, reduces wear on bearings, gears, axles and engine. Specially designed for long life and trouble-free operation, Torqomotive drive automatically adjusts output horsepower (H.P.) to supply the exact amount of torque required for each change in operating conditions. "Teamed with Plymouth's other outstanding operating qualities," reports Mr. Donaldson, "it saves us up to $1000 a year."

For full information on a Plymouth designed to fit *your haulage needs*, send a brief outline of your operations to: The Fate-Root-Heath Company, Dept. A-15, Plymouth, Ohio.

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MARIETTA STORAGE SILO and conveyor system moves sand from pit for processing.

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42 Years Know-How in Precast Concrete Construction

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tle as possible because perspiration starts corrosion. Use clean lint-free rags. Never use cotton waste to wipe a bearing or its mating surfaces. Cleanliness counts.

Serviceable used bearings also require special handling. Take time to examine the assembly. Countless bearings have been ruined because someone didn't know how to take the assembly apart and re-assemble it. Bearing pullers or an arbor press are handy items for removing or installing bearings. Improvised tools may work, but it is essential that considerable care be taken to avoid damage.

When a piece of equipment is taken apart, the bearings should stay with the member to which they are tightly fitted. In the case of bearings which are made with separable parts—inner ring, outer ring, and ball or roller assembly—both rings may often fit tightly. Always determine whether it is best to press or pull on the race or cup when the bearing is tight on the shaft or bore. Press or pull straight and square to keep the ring from cocking. A cocked bearing can easily score the shaft or housing or cause damage to the bearing itself. Never press or pull against bearing shields or separators. Remember that in most cases a bearing *can* be re-used—if you remove it correctly.

After the bearing has been removed, wash it in a solvent until it is absolutely clean. Next, determine whether it is still serviceable. Here are the reasons for replacing a bearing:

1. Broken or cracked rings
2. Dented seals or shields
3. Cracked or broken separators, balls, or rollers
4. Flaked areas on balls, rollers, or raceways
5. Bearings which have been overheated — indicated by brownish blue or blue-black color
6. Bearings with dented or "brinelled" raceways

If it has been determined that the bearing is serviceable, apply a coating of light grease or other protective lubricant. Rotate the bearing slowly, to make sure that all surfaces are completely lubricated. Wrap in clean paper with the identification of the bearing clearly marked on it. This practice will eliminate unnecessary handling.

Remember these key points: don't throw away serviceable bearings; use the *right* bearing as listed in the manufacturer's current parts catalog if replacement is necessary; keep bearings clean, exercising care during installation and removal to avoid damage.

A.S.T.M. Issues Supplements To 1955 Book of Standards

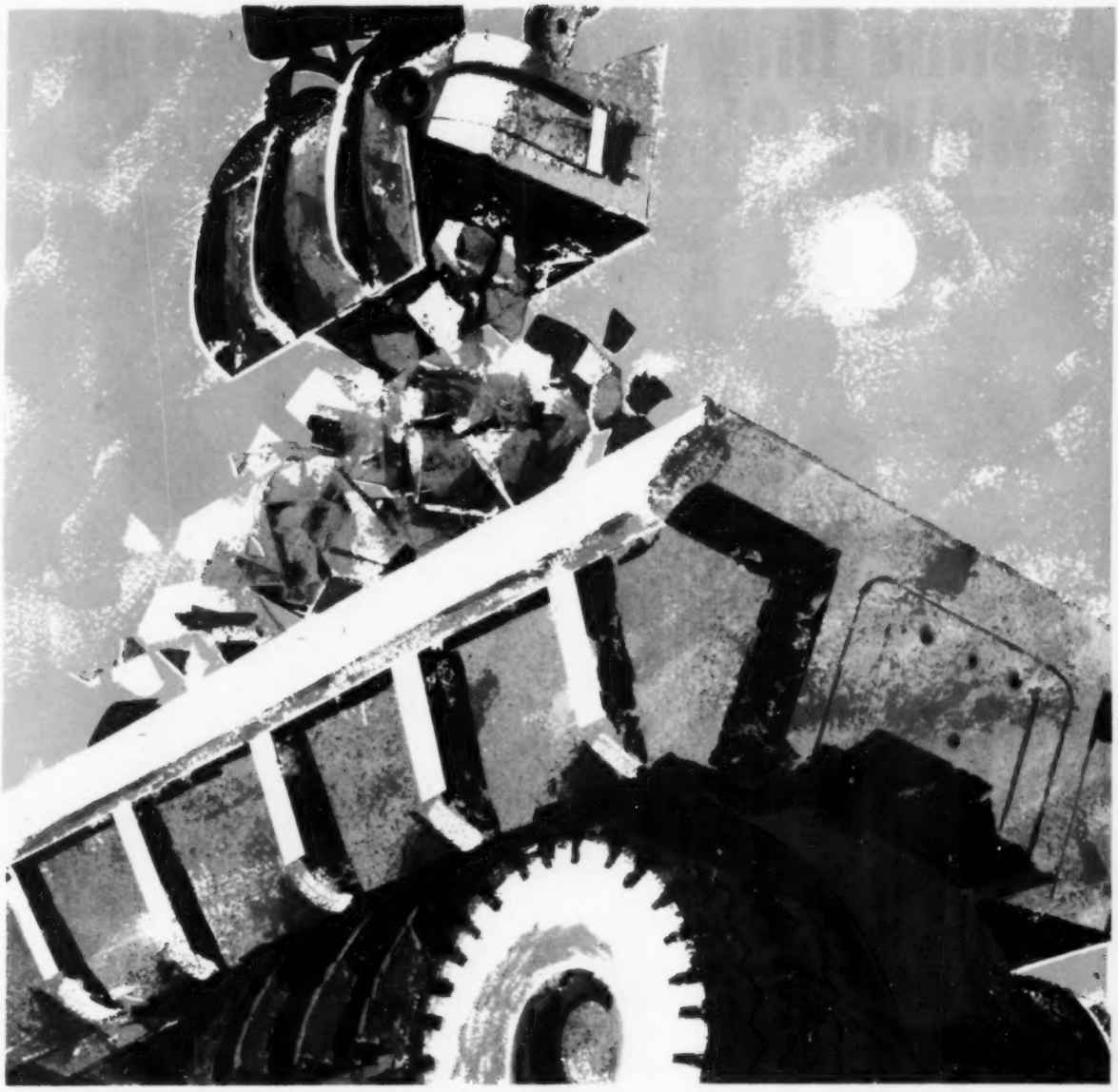
The American Society for Testing Materials has published the 1957 supplements to the 1955 *Book of A.S.T.M. Standards*, including the section covering the nonmetallic industry.

Published triennially with supplements in the intervening years, the *Book of A.S.T.M. Standards* provides a reliable source of authoritative, unbiased, and widely-applicable standards covering specifications, methods of test, and definitions for engineering materials.

Part 3 of the supplement, covering cement, concrete, ceramics, thermal insulation, road materials, waterproofing, and soils, contains 60 standards covering cement, lime, gypsum, mortars (chemical resistant and masonry), masonry building units, refractories, ceramic whiteware, poreclain enamel, glass and glass products, thermal insulating materials, mineral aggregates, highway materials (bituminous and nonbituminous), waterproofing and roofing materials, soils, and general testing methods.

Spokesmen of the National Gypsum Company, Buffalo, N. Y., disclosed that the firm's lime plant in Luckey, Ohio, will soon be shut down permanently. It was emphasized that the shutdown has no bearing on the current depressed condition of the market. National Gypsum operates another lime plant in Gibsonburg, Ohio, near Luckey.

Herbert McGarrah and Lawrence Weaver, both of Aberdeen, Wash., have purchased the equipment of the Swano Excavating Company, Aberdeen, and will operate a firm under the name of Weaver and McGarrah, Sand and Gravel.



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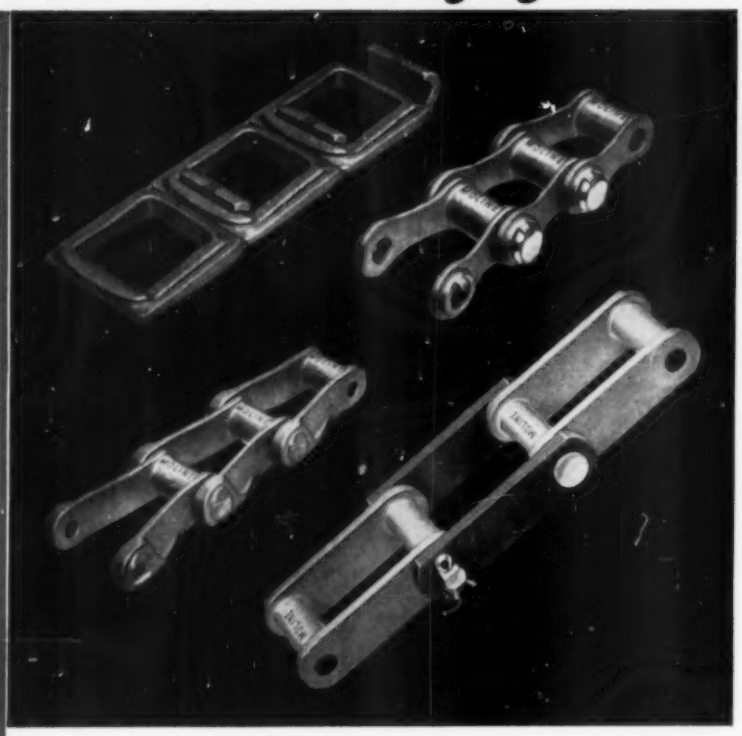
Moline link attachments adapt Moline Chains to many jobs

STANDARD ATTACHMENTS
Only a few of the wide variety of Moline Chain attachments are shown here.



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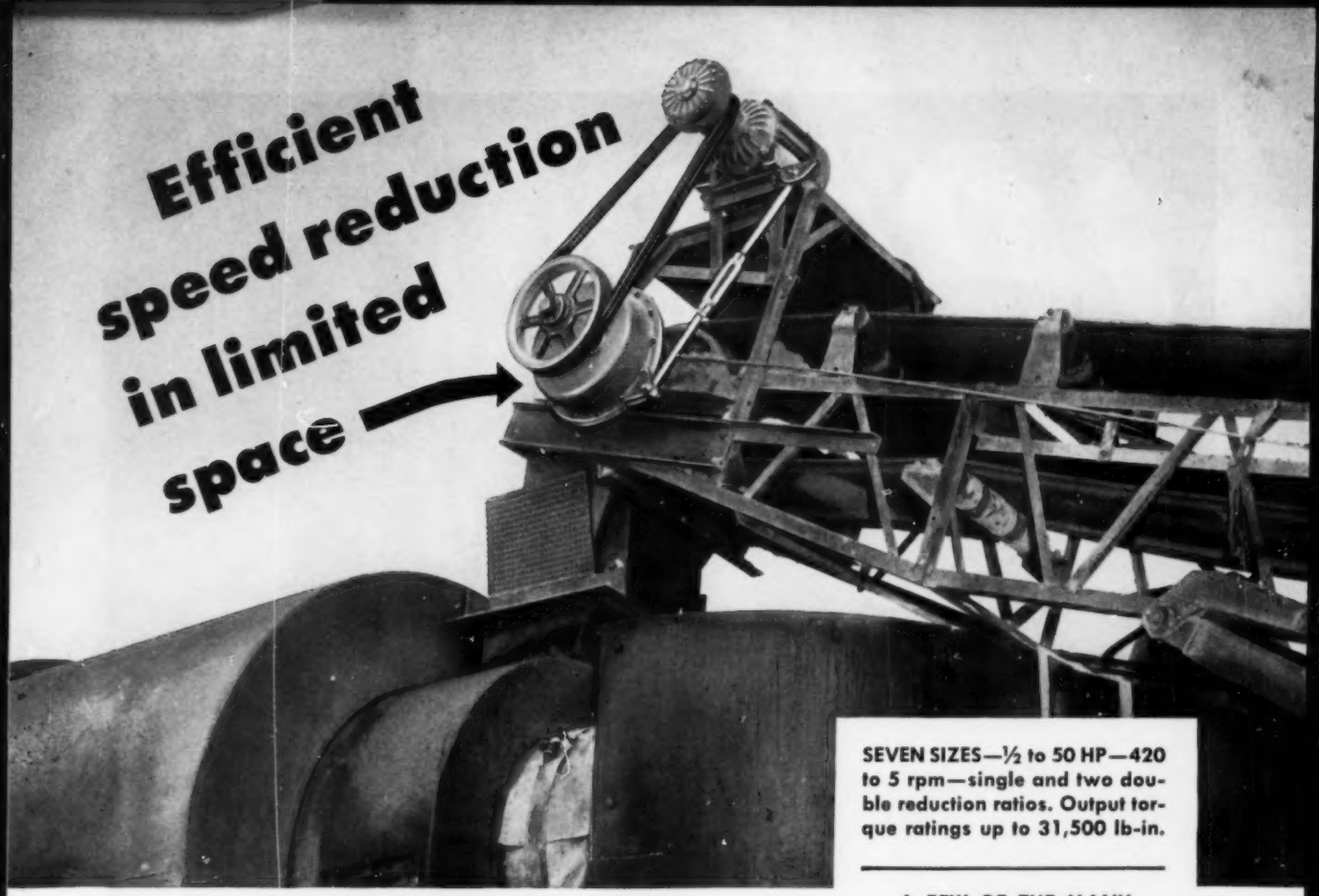

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These units are completely FALK-designed and FALK-built for a long life of dependable, trouble-free service. *Precision-cut helical gears of highest efficiency* are employed for efficient, quiet operation.

Always available promptly from factory and distributor stocks, from *coast to coast*. For details, ask your Falk Representative or Distributor—or write for **Bulletin 7100.**

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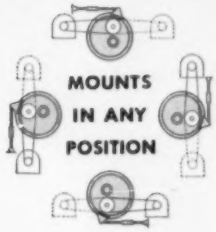

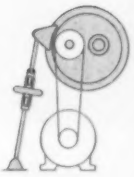

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OVERLOAD RELEASE that will slacken belts and cut off power if overload occurs

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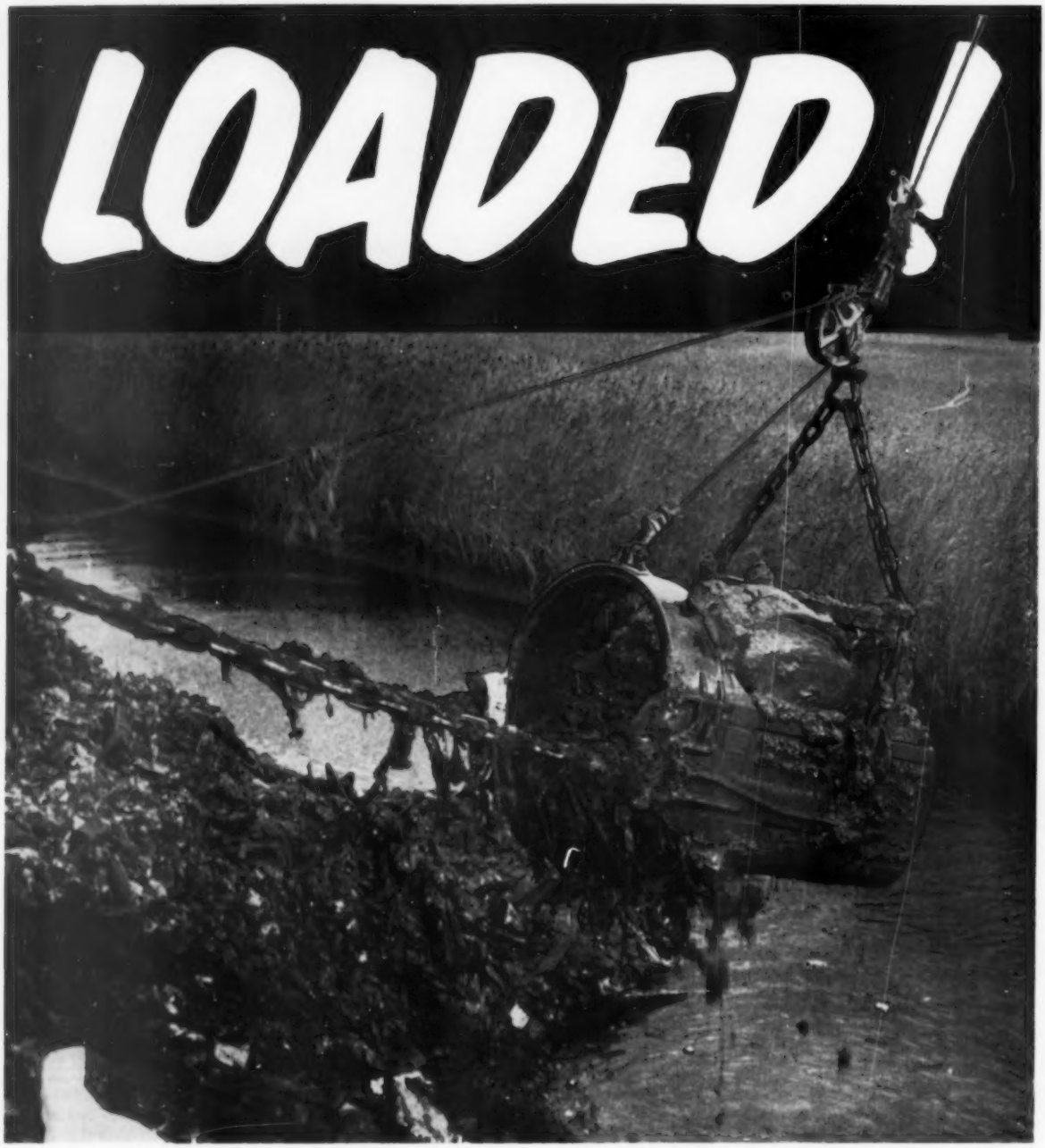

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¼ to 40 Cubic Yards

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Hendrix Lightweight DRAGLINE BUCKETS

All Hendrix Buckets available without perforations

GRAVITY-DUMP eliminates slow-acting body-hoists

There are no complicated mechanical body-hoists to slow up haul cycles — no expensive hoist replacement parts, maintenance or costly hoist down-time when you haul with Koehring Dumptor. *It has no body-hoist.* Operator trips the body-release lever, and *gravity* tilts the 6-yard body, dumps load instantly.

You get this one-second dumping action *every time,* under heaviest loads, in all temperature extremes, because *gravity-dump* never balks, never wears out. You gain an important production advantage, too. Saving 15 to 25 seconds on every dump adds up to a substantial increase in extra yards hauled per hour. For example —

Increases output 9%

Take a typical 1,000-foot haul, where an ordinary dump truck would make 16 trips an hour. Allowing the same time to load, haul and return, Koehring Dumptor would average 17½ trips on the same cycle. That's because one-second dumping saves an average of 20 seconds dump-time on each trip — gains a total of 5.3 minutes more productive haul-time per hour. This is typical of Koehring Dumptor's basic principle — to reduce non-productive time to a minimum — and increase *work-time* for more yards per day.

What's more, Dumptor *no-turn shuttle hauling* cuts another 15 to 30 seconds off cycle time. It operates at same speeds in either direction, travels round trip without turning. Call Koehring distributor *now.*

KOEHRING
DIVISION OF KOEHRING COMPANY
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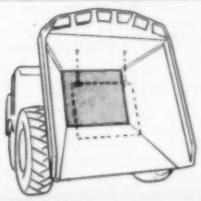
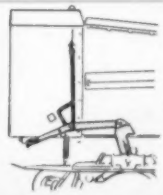
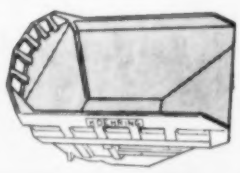
KH11



When dumping sticky materials, free-swinging kick-out pan breaks load suction. Pan bolts to floor, gives extra protection when loading rock.



Body latch for gravity-dump is simple and trouble-free. It's engaged by a single hook mounted on chassis. Handy dump lever is inside cab.



There are no bulges or ledges inside the streamlined, all-steel body. Top edge is box beam construction — sides and ends are rib-reinforced.

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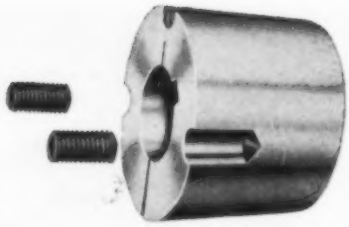
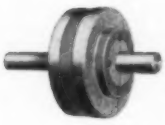
Other Koehring products: EXCAVATORS • CRANES • twinbatch® PAVERS • LONGITUDINAL FINISHERS • MUD JACKS®



TAPER-LOCK Bushings are *Interchangeable!*

Change from shaft to shaft				
Change from size to size				
Change from sheaves to sprockets to couplings to conveyor pulleys				

Save Time!

There's nothing like Taper-Lock for mounting wheels on shafts! First, you get off-the-shelf convenience. No reboring, no machining, no waiting!

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You get the holding power of a shrunk-on fit with minimum effort. Product and bushing slip on the shaft as a unit. Tighten the screws—and you're set!

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You save big money by minimizing down-time with *quick* changes. And interchangeability minimizes inventory. Note that all of the above installations are handled with a total of only four bushings—all with the same outside diameter!

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two ropes in one!

Here is a combination that has proved itself during three years of field testing. A welcome addition to Roebling's great line of wire ropes, Royal Blue *Herringbone* is both a regular lay and lang lay wire rope!

So, in one rope you have the greater flexibility and abrasion resistance of lang lay construction *plus* regular lay's superior stability under severe operating conditions.

Preformed Herringbone is made of two *pairs* of lang lay strands, and two strands of regular lay which separate the two pairs of lang lay—all of it made of Type 1105 rope wire.

For three years Herringbone has been used for general hoisting, holding and closing lines, shovel ropes, wagon scraper ropes and dragline ropes. Without reservation, its performance has been superior to that of any other rope used for the same jobs . . . even in the hands of inexperienced personnel! *Its proven capabilities clearly suggest its use for all jobs where steel core ropes are normally used.*

See your Roebling salesman for all the facts or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey. Roebling Herringbone, the two-in-one rope to meet the *doubly* stringent demands of today's economy.

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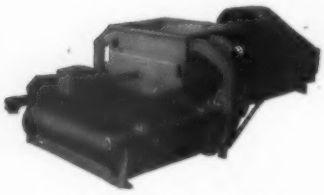
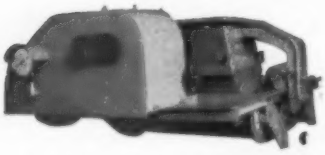
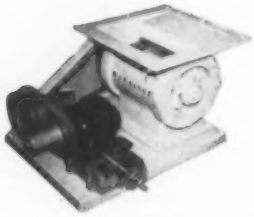


Constant-Weight Feeders



Weight-Measuring Feeders



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The Hardinge line of regulating feeders provides a rugged and trouble-free feeder unit for every type of dry, flowing material. The Constant-Weight Feeder, in particular, is excellent for control by weight, rather than volume, of materials which vary in size or density. Write for Bulletin 33-E-8. State your feeding problem.

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Legal Decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

It is seldom that the higher courts in different localities rendered so many outstanding decisions, as were decided during the last few weeks. Quite obviously, knowledge of the cause and outcome of these new law suits will impart valuable information to distributors, processors, buyers, and sellers of nonmetallic products. The information to be derived from these decisions will assist readers to avoid expensive litigations and, also to win unavoidable law suits.

Taxes Payable on Materials

This legal question has caused considerable discussion: If land contains materials such as sand, gravel, or rock, and the property owner sells these materials, can he list the income in his federal income tax returns as "capital" gains and pay only 50 percent of the normal taxes?

The general answer is: The land owner is entitled to report such income as capital gain *if the transaction was one for the sale of property held as a capital asset.*

For illustration, in *Gowans v. Commissioner of Internal Revenue,* 246 Fed. (2d) 448, the testimony showed these facts: One Gowans owned a tract of land, portions of which were so steep that extensive grading would be required before they could be improved by buildings. The lots were found to contain a deposit of sand material. Gowans entered into a contract with a company to quarry the sand and pay 40 cents a cubic yard for it. Under the agreement, the company obligated itself to remove all of this sand before the expiration of five years and to complete the grading of the lots and leave them in good order and condition for sale and use as building lots. All of the sand—250,010 cu. yd.—was removed by the company.

On his income tax returns Gowans reported the amounts received under the contract as long-term capital gain from the sale of a capital asset taxable at the rate of 50 percent. Litigation arose when the Commissioner of Internal Revenue held that the full amounts were taxable as ordinary income.

The lower court held that Gowans must pay full taxes on the money received from the company, but the higher court reversed this verdict, saying:

"Since there was an obligation to remove all of the sand, there was also an obligation to pay for all of the sand contained within the deposit. Hence, the obligation to pay for this sand was a 'fixed liability.' A failure to remove all of the sand would have been a breach of contract for which petitioner (Gowans) could have sought the usual remedies. We hold that petitioner (Gowans) did not retain an economic interest in the sand which the company engaged to remove. He was accordingly entitled to report the proceeds of the contracts as capital gain."

In other words, the contract between Gowans and the company was a sale of sand. Therefore, Gowans was entitled to list the income as a capital gain and pay only 50 percent of the normal income taxes to the United States Government.

Blasting Operations

A few weeks ago a higher court held that owners of dwellings and homes cannot stop blasting operations of a corporation which has been quarrying rock in the area for a relatively long period of time.

For example, in *Henn v. Universal Atlas Cement Company,* 144 N. E. (2d) 917, the testimony showed that a corporation quarried rock by blasting operations. The quarry was located in a farming area

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OL-175 POWER-LOADER

"We now load and stockpile 125% faster,"

says highway superintendent

OL-175 Power-Loader—newest in the field, with 109 gas or 133 diesel net engine h.p. New foot controls provide fast forward-back travel changes with quick speed response. Other features include 4-wheel drive with 2-wheel drive for traveling, power brakes, power steering, torque converter. Equipped with 1½-yd. bucket, dozer and other attachments.

The Smithtown Highway Department of Long Island, New York, has added speed and economy to their operations with an Oliver OL-175 Power-Loader, according to M. B. Kondenar, Supt. of Highways.

With its combination of a big 1½-yd. bucket and its speed in getting around to scattered stockpiles in their ¼-mile-long yard, the OL-175 keeps work moving at a fast clip—125% faster than with previous equipment. And the "go-anywhere" ability of the OL-175 means that they handle many other jobs around the area at a big saving in time and cost.

Says Mr. Kondenar, "We particularly like the fast, simple, easy operation...power brakes and power steering. And the foot throttle provides much better control than with loaders without this outstanding feature."

A demonstration of the OL-175 will convince you of the savings you can make with this versatile rig. Ask your Oliver distributor.

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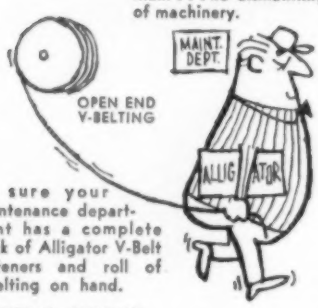
Alligator V-Belt Fasteners simplify the replacement of worn or damaged V-belting with correct size, stretch resistant OPEN-END V-BELTS — Keep costly "downtime" at a minimum . . . no dismantling of machinery.



Be sure your maintenance department has a complete stock of Alligator V-Belt Fasteners and roll of V-Belting on hand.

FOUR TYPES . . .

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not zoned when the corporation began extracting rock.

With respect to an ordinance passed after a company begins its operations, the court said:

"The right of an owner to use and to continue to use his property in a lawful manner is protected by the constitutional provisions that no person shall be deprived of life, liberty, or property without due process of law."

Without respect to slight annoyances to which owners of nearby homes were subjected, the higher court refused to issue an injunction against the corporation, saying:

"It is the conclusion of the court that the operation of a quarry in an unzoned area used exclusively for agricultural purposes is not a nuisance even though slight vibrations are recognized in a few nearby farm houses. One who becomes a resident of a trading or manufacturing neighborhood, or who remains while in the march of events a residence district gradually changes its complexion, should be held to submit to the ordinary annoyances, discomforts, and injuries which are fairly incidental to the reasonable and general conduct of such business in his chosen neighborhood."

Employee Negligence

Last month a higher court definitely held that if an employee is killed due to his own negligence, his dependents can recover compensation under the State Workmen's Compensation Act, but *no additional compensation or damages will be awarded.*

For example, in *Arnold v. Randerson,* 85 N. W. (2d) 821, it was shown that a man named Randerson was hired by a company as a certified blaster to take charge of the blasting operations. One day Randerson set off a blast of dynamite that had been placed in drilled holes. A piece of concrete struck him, and he died as a result of the injuries thus sustained.

The state paid compensation to his dependents under the State Workmen's Compensation Act. Soon afterward the Industrial Commission ordered the company to pay to Randerson's dependents a large sum, as additional compensation because of the violation by the company of a state safety order or statute.

In subsequent litigation, the testimony showed that shelter, blasting mats, and sufficent wire were made available by the company and that Randerson was killed because of his failure to use such equipment. Therefore, the higher court held that the company need not pay additional compensation to Randerson's dependents. The court said:

"Randerson did not choose to detonate the blast from the shelter. The record further discloses that blasting mats were available and were offered to Randerson. The record also discloses that up to 800 ft. of wire were available for the blaster."

Must Provide Illumination

A few weeks ago a higher court rendered an unusually important decision to the effect that if a general contractor wants to prepare to win suits filed by injured employees, he must provide efficient illumination on night jobs.

For instance, in *Raile v. Charles Wilson Construction Company,* 84 N. W. (2d) 199, injuries were sustained by a concrete supplier's employee when an empty "mud buggy" was being lowered to the ground at the site of a building the Charles Wilson Construction Company was constructing. The injury was sustained at night.

The higher court indicated that the construction company would be liable in damages to the injured employee, if the testimony shows that the company failed to provide sufficient illumination whereby the employee could not see the "mud buggy" and get out of its way.

Insurance Agent Concealed Facts

Generally speaking, failure of a corporation, or other owner, to list all mortgages on a motor vehicle voids an insurance policy. This is so because a majority of courts hold that failure or negligence of the owner of an automobile to list all encumbrances on the vehicle in the application for insurance deprives the insurance company of its legal right to reject the application; the insurance company's normal risks are also increased.

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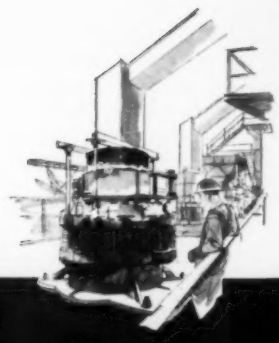
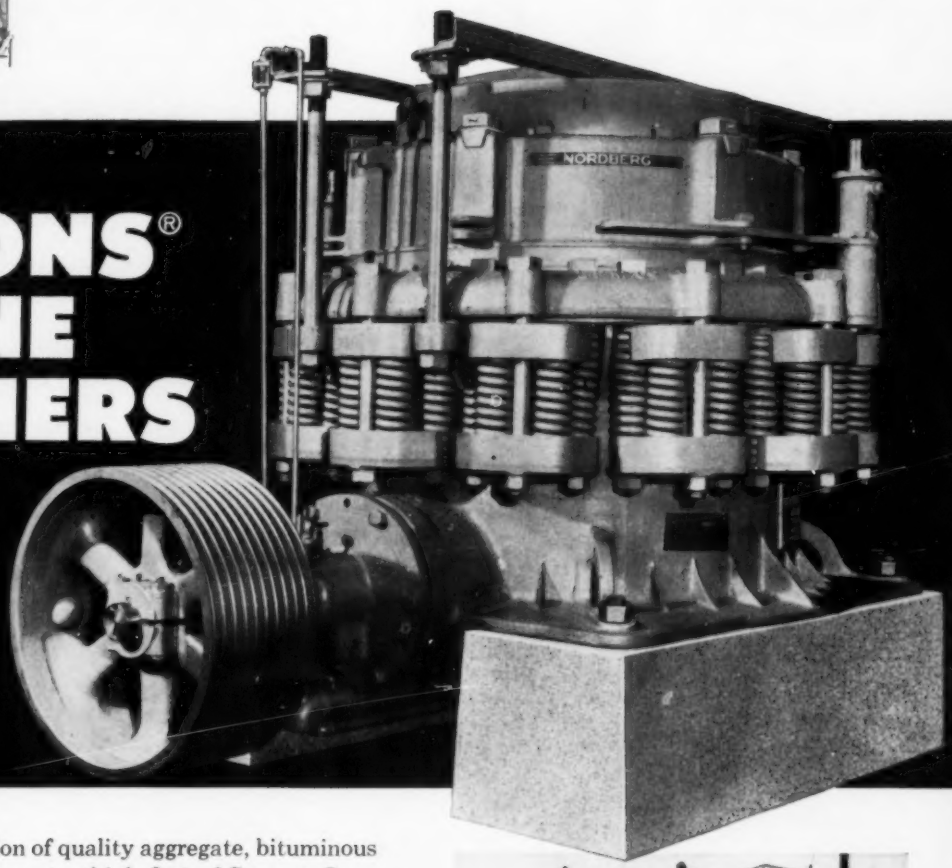
You get Quality Aggregate at lower cost with...



SYMONS® CONE CRUSHERS



For continuous production of quality aggregate, bituminous mixes and sand at lower cost—think first of Symons Cone Crushers—heavy duty, versatile crushers that produce more material to desired specifications, use less power, and give long service with low maintenance. Good reasons why these Nordberg built crushers are the outstanding choice of leading producers and contractors in the construction of highways, dams and hydro projects, bridges, as well as commercial and residential buildings.

Consult Nordberg soon . . . it will pay you to specify and use Symons Cone Crushers for both stationary and portable service. Write for descriptive data on Symons Cone Crushers—built in sizes to produce from 6 to 900 or more tons per hour.

NORDBERG MFG. CO., Milwaukee 1, Wisconsin

NORDBERG

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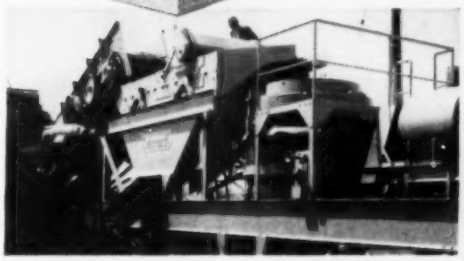
C-358

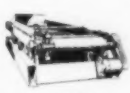


IN PORTABLE SERVICE

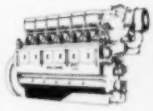
Increasing numbers of portable plant operators are now using Symons Cone Crushers for big capacity of fine product . . . such as the Cedarapids portable crushing plant utilizing a 4′ Symons Cone Crusher, shown above.

SYMONS GYRATORY CRUSHERS

SYMONS VIBRATING GRIZZLIES



SYMONS VIBRATING SCREENS



NORDBERG ENGINES

NORDBERG MACHINERY

ATLANTA • CLEVELAND • DALLAS • DULUTH • HOUSTON • KANSAS CITY • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS
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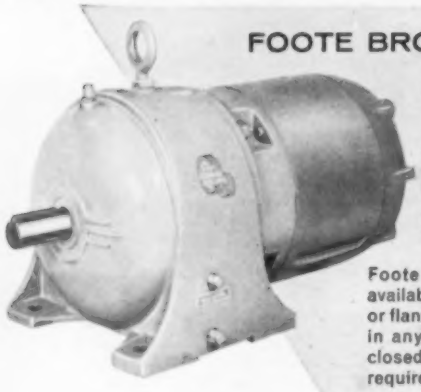
FOOTE BROS. **Motorized Drives**

Duti-Rated LIFETIME GEARING

Gives You More Power Per Dollar



FOOTE BROS.-LOUIS ALLIS

GEARMOTORS

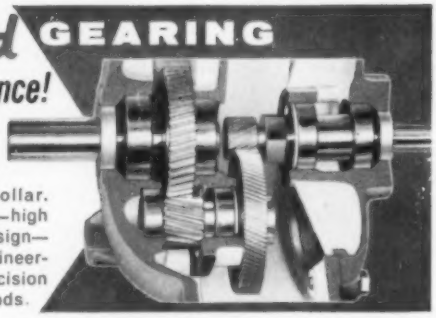
1 to 150 HP...Single, Double, Triple, Quadruple Reductions . . . Output Speeds from 780 to 7.5 RPM

Foote Bros.-Louis Allis Gearmotors are available in over 3500 types and sizes. Foot or flange mountings. Motors can be ordered in any type—open drip-proof, totally enclosed, explosion proof, etc. to meet your requirements.

Duti-Rated GEARING

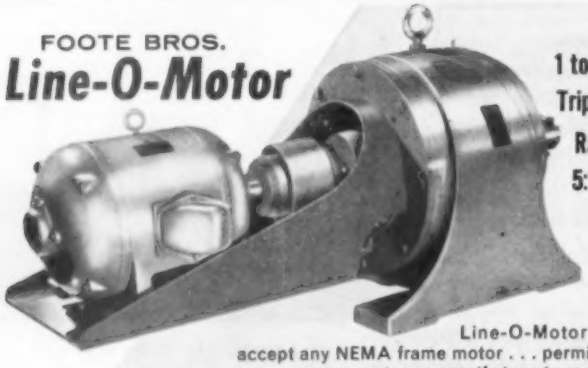
Makes the Difference!

Duti-Rated Gearing is the heart of Foote Bros. Motorized Drives . . . drives that give you more load capacity and wear life per dollar. This is premium quality gearing—high hardness, accurate, balanced design—the product of thousands of engineering and development hours, precision tooling and manufacturing methods.



FOOTE BROS.

Line-O-Motor



1 to 75 HP...Double, Triple Reductions... Ratios: 5:1 thru 238:1

Line-O-Motor Drives accept any NEMA frame motor . . . permit you to use your own motor or specify type to meet plant standardization. Foot or flange mounted.

Write for CATALOG MRA. It has complete details and selection data on Foote Bros. Motorized Drives.

this trademark stands for the finest industrial gearing made

T. M. REG. U. S. PAT. OFF.

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Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION

4571 South Western Boulevard Chicago 9, Illinois

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Notwithstanding this usual law, it is interesting to observe that a few weeks ago an Oklahoma higher court held that if the insurance company's agent knows that a mortgage exists and it is not listed by the automobile owner in the application for insurance, the insurance company cannot avoid its liabilities on the policy.

For illustration, in *Motors Insurance Corporation v. Freeman,* 304 Pac. (2d) 328, the testimony showed that one Freeman filed an application for insurance on his motor vehicle. Freeman failed to list in this application a second chattel mortgage on the automobile. Soon after the policy was issued the vehicle was destroyed by fire. The insurance company refused to pay the loss to Freeman in view of a clause in the insurance policy which provided that the policy would not be in force while the automoble was subject to any mortgage not specifically declared and described in the policy.

In subsequent litigation the testimony proved that the insurance company's agent knew that the second mortgage existed. Therefore, the higher court held the insurance company liable for payment to Freeman of the full value of the destroyed motor vehicle.

Must Post Signs

Last month a higher court held that if a company adopts special and unusual rules to avoid injury liability, it must post large signs giving notification to all persons, otherwise the company will be held liable in damages for injuries to persons and property resulting from such unusual rules.

For illustration, in *Falls Stone Company,* 307 S. W. (2d) 204, the testimony showed that drivers of motor vehicles of the Falls Stone Company had a custom of using the left side of a road. A truck owner named Thomas was seriously injured when his truck collided with a truck owned by the Falls Stone Company. The testimony showed that Thomas was driving on the right side of the road when his truck collided headon with a truck being driven by an employee of the Falls Stone Company on the left side of the road.

WHAT'S YOUR DIGGING PROBLEM?

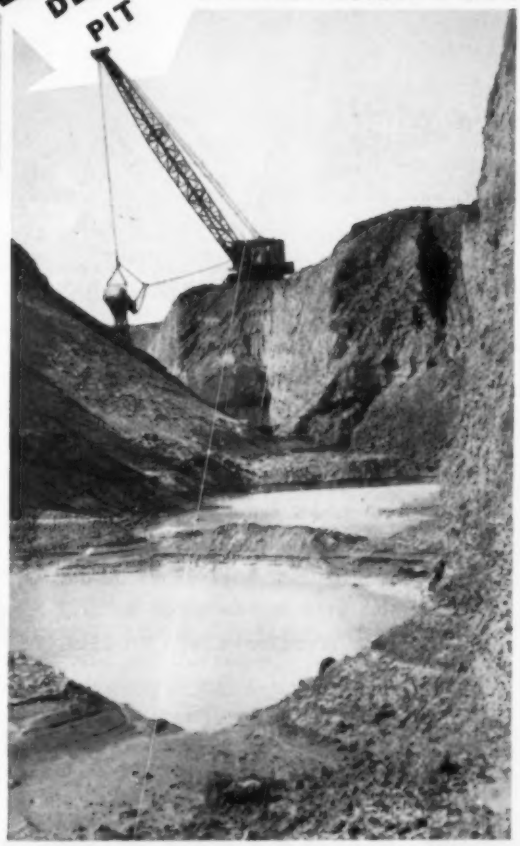
These two different jobs show you how you can always rely on Lorain reliability — regardless of the job requirement — regardless of the size you need. From 3/8 to 2½ yards as shovels, 7 to 75 tons as cranes, on crawlers or rubber tires — Lorain has profit-producers for your job.

• **MESHBERGER STONE CO., INC., Columbus, Ind.** uses its 2-yard Lorain (above) around the clock to dig and load limestone from an 18-ft. face into trucks. It works 22 hours out of 24. MESHBERGER OWNS 4 LORAINS.

• **OPITZ SAND & GRAVEL CO., Denton, Texas** OWNS 3 LORAINS. At right, its 1¾-yard Lorain Dragline with 70-ft. boom loads out sand and gravel at a washing plant. It also strips 20 foot of overburden. This Lorain has handled 3,000 yards in a 10-hour day — sufficient to easily keep up with plant capacity.

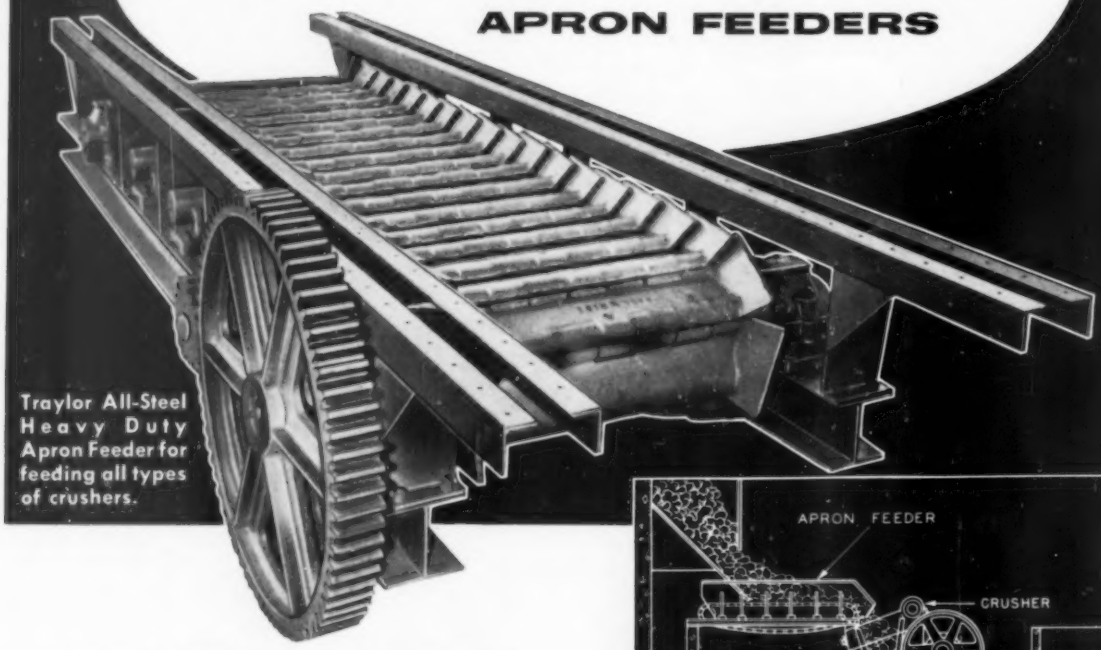
• Many models of the complete Lorain shovel-crane line have the following profit-producing features: the stronger, yet lighter, Lorain square-tubular-chord crane boom; 2-lever, "Joy-Stick" air power controls that permit easy, effortless, simpler operation; and the modern "Shear Ball" turntable mounting which eliminates the constant adjustment, maintenance and lubrication problems of other designs. See your Thew-Lorain Distributor for details.

THE THEW SHOVEL CO., LORAIN, OHIO

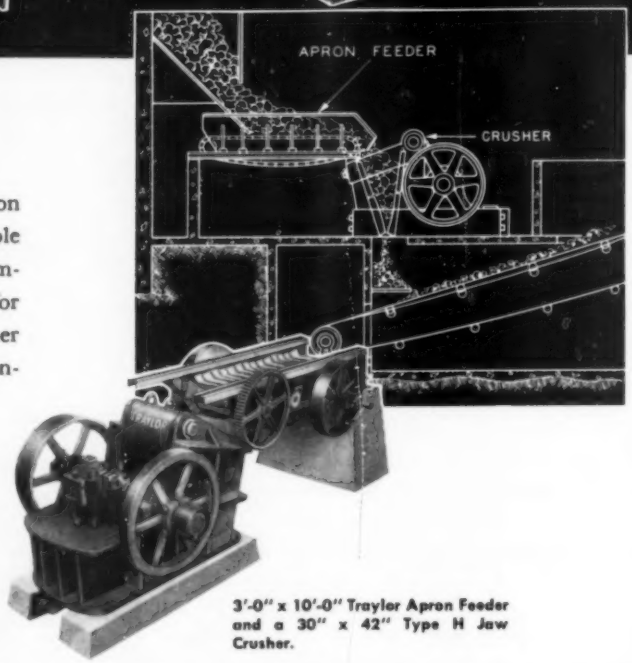


THEW LORAIN®
RELIABILITY IN ACTION

Traylor-MADE APRON FEEDERS



Traylor All-Steel Heavy Duty Apron Feeder for feeding all types of crushers.



Traylor All-Steel Heavy Duty Apron Feeder is designed in heaviest possible proportions to resist shock from the impact of large lumps of material. Use for volume feeding direct to a primary crusher or from under large bins to a belt conveyor with practically no impact or damage to the belt. This feeder operates in a horizontal or inclined position. Write for bulletin No. 2114.

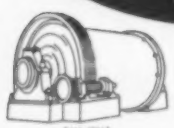
3'-0" x 10'-0" Traylor Apron Feeder and a 30" x 42" Type H Jaw Crusher.

Traylor

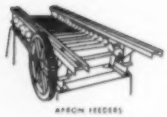
TRAYLOR ENGINEERING & MFG. CO. 1055 MILL ST., ALLENTOWN, PA.

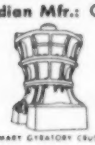
Sales Offices: New York — Chicago — San Francisco

Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P.Q.


BALL MILLS

ROTARY KILNS


APRON FEEDERS


PRIMARY GYRATORY CRUSHERS

JAW CRUSHERS

SECONDARY GYRATORY CRUSHERS

The higher court held the Falls Stone Company liable in damages for injuries sustained by Thomas, saying:

"Klaber (Falls Stone Company) maintains that because of the special nature of a quarry operation, involving considerable movement of vehicles, Thomas had the duty, before driving about the premises, to seek out the manager and make inquiry concerning any special customs. This is a novel theory, and is not supported by any authority. There were no signs or other warnings of the special custom of driving."

Surety Liable on Bond

According to a late higher court decision, a general contractor's surety is liable strictly on its bond, and not upon an agreement made by the contractor as to the amount due.

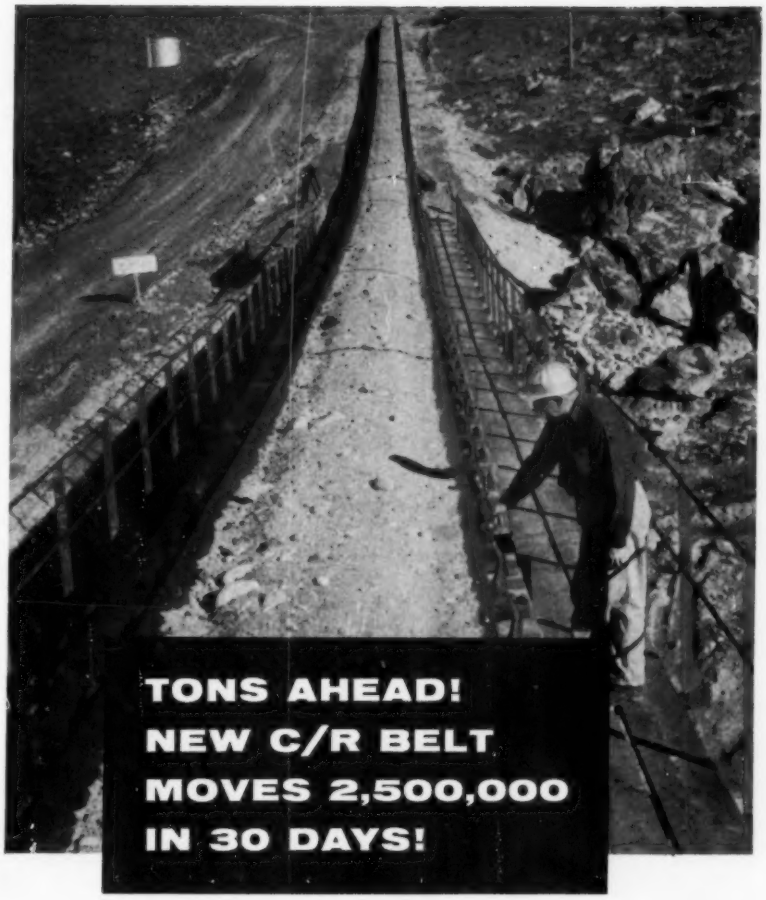
For illustration, in *Southern Fireproofing Company v. S. T. Kenyon & Company*, 137 N. E. (2d) 782, the evidence discloses that a general contractor entered into a written contract to construct a building. The contractor furnished bond with the Globe Indemnity Company as surety. Later the general contractor entered into a contract with a subcontractor to furnish the general contractor labor and masonry materials in the construction of the building for the contract price of $197,000. The subcontractor was paid the sum of $187,397.55 but he claims $397.55 for extras in addition to the contract price, leaving a balance due and unpaid of $10,000.

In subsequent litigation, the higher court held that since the general contractor's surety was not a party to an agreement whereby a balance was agreed upon, the surety's liability could not be based upon the alleged account stated but only upon the bond.

Truck Hits Horse

Recently a higher court held that a truck owner never is liable in damages for injuries sustained by the rider of a horse struck by the truck, unless the testimony clearly proves the truck driver's negligence was the proximate cause of the injury.

For example, in *Maureen v. Pre-Mixed Concrete Company*, 312 Pac. (2d) 723, a girl named Maureen was severely injured while riding a



"Miracle fiber muscle" has helped revolutionary C/R conveyor belting set new world records in aggregate handling! At Great Salt Lake, where Hewitt-Robins developed an amazing 2-mile bulk materials handling system, these new C/R belts, **speeding at 850 feet per minute** and sometimes handling over 6,000 tons per hour, have established a new world record of 2,500,000 tons in 30 days!

Hewitt-Robins research, engineering, and field experience have utilized latest advances in "miracle fibers" to produce a new C/R conveyor belt which far surpasses ordinary types of synthetic and natural fiber reinforced belting. Only Hewitt-Robins C/R conveyor belts, with higher tensile strength, lower stretch, increased flexibility, fatigue resistance, and the toughness contributed by these miracle fibers, could establish this record.

Whether your problem is moving mountains, mining ore, transporting coal, or feeding furnaces, specify a modern H-R miracle fiber C/R belt. To find out how H-R products and services can help you, consult your classified telephone directory for the nearest H-R representative, or contact Hewitt-Robins, Stamford, Conn.

HR HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

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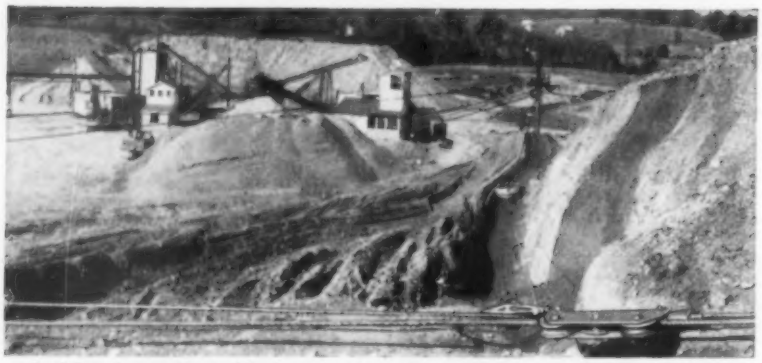
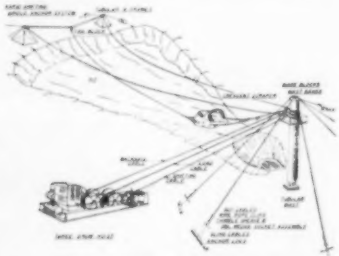
Profitable Sand and Gravel Handling Starts with a Sauerman DragScraper
digging *and hauling to plant*



3-yd. DragScraper digs and hauls sand and gravel from dry pit to plant hopper at 300 fpm.

This 2-yd. DragScraper is dumping river gravel dug from 50 ft. of water into grizzly feeding conveyor to plant. *See Sauerman News No. 147.*



● **THE SAUERMAN METHOD**— *showing a basic DragScraper installation. Variations of this method are Sauerman engineered to handle the toughest digging jobs at the lowest cost per cu. yd.*

A Sauerman DragScraper handles the two basic steps of material flow—digging and hauling—in one continuous operation. No double handling is required. You cut labor costs in half—or even more—because a single machine, controlled by one man, replaces the multiple equipment required by other methods.

Profitable handling is further assured by a maintenance cost of only 1½ cents per cu. yd. for the average size Sauerman installation. On larger machines, the increased volume drops this cost still lower. You'll save money on power, too, by eliminating heavy machinery with limited handling-to-dead weight capacity. You pay only the cost of moving the actual digging tool—a Crescent DragScraper.

The best Sauerman Machine for your plant is governed by the nature of the deposit, location of material, depth and plant layout. DragScraper machines in sizes from ⅛ to 15 yds. provide direct delivery to feeder, scalper or crushers at the lowest cost per cu. yd.

Why not consult Sauerman engineers about your plant? Their recommendations will be based on almost fifty years of sand and gravel excavating machinery experience. Ask for Catalog A (DragScrapers).

SAUERMAN BROS., INC. 634 SO. 28th AVE. BELLWOOD, ILL. Cable: CABEX—Bellwood, Ill.

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

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horse which was struck by a truck owned by Pre-Mixed Concrete.

In the later suit the higher court reversed the lower court, which held the Pre-Mixed Concrete Company liable. The higher court held that the concrete company could not be liable unless the testimony clearly proved that the injury was caused by negligence of the truck driver, and further that Maureen used due care to protect herself.

Purchaser Delayed in Making Complaint

In the past the higher courts have held that a purchaser of unsatisfactory merchandise need not sue the seller until a "reasonable" period of time has expired after he discovers that the merchandise is defective. Recently, however, a higher court held that if the purchaser delays more than one year in filing the suit, the verdict will be in favor of the seller.

For instance, in *Walton v. Best Company,* 77 So. (2d) 563, the testimony showed that a manufacturer advertised certain paint for sale in a local newspaper. The advertisement stated that the paint was guaranteed 100 percent "mold and mildew-resistant."

A home owner read the advertisement and purchased 25 gallons of the paint, which was applied on the home by a professional painter.

The purchaser sued the manufacturer about one year later and alleged that mildew and mold had caused the paint job to become unsightly and that it would cost $885 to remove the paint from the home. The purchaser sued the seller of the paint for $1,848.

The higher court refused to award the purchaser a favorable verdict because he had failed to file suit against the seller of the paint within one year after he purchased it. The court said: "We conclude that the claim is barred by the prescription period of one year."

For Residential Purposes

A few days ago I received an interesting letter from the owner of a concrete block manufacturing plant in which he wants to know whether or not he can construct a new plant on a lot purchased in a residential area. He says his lot deed contains

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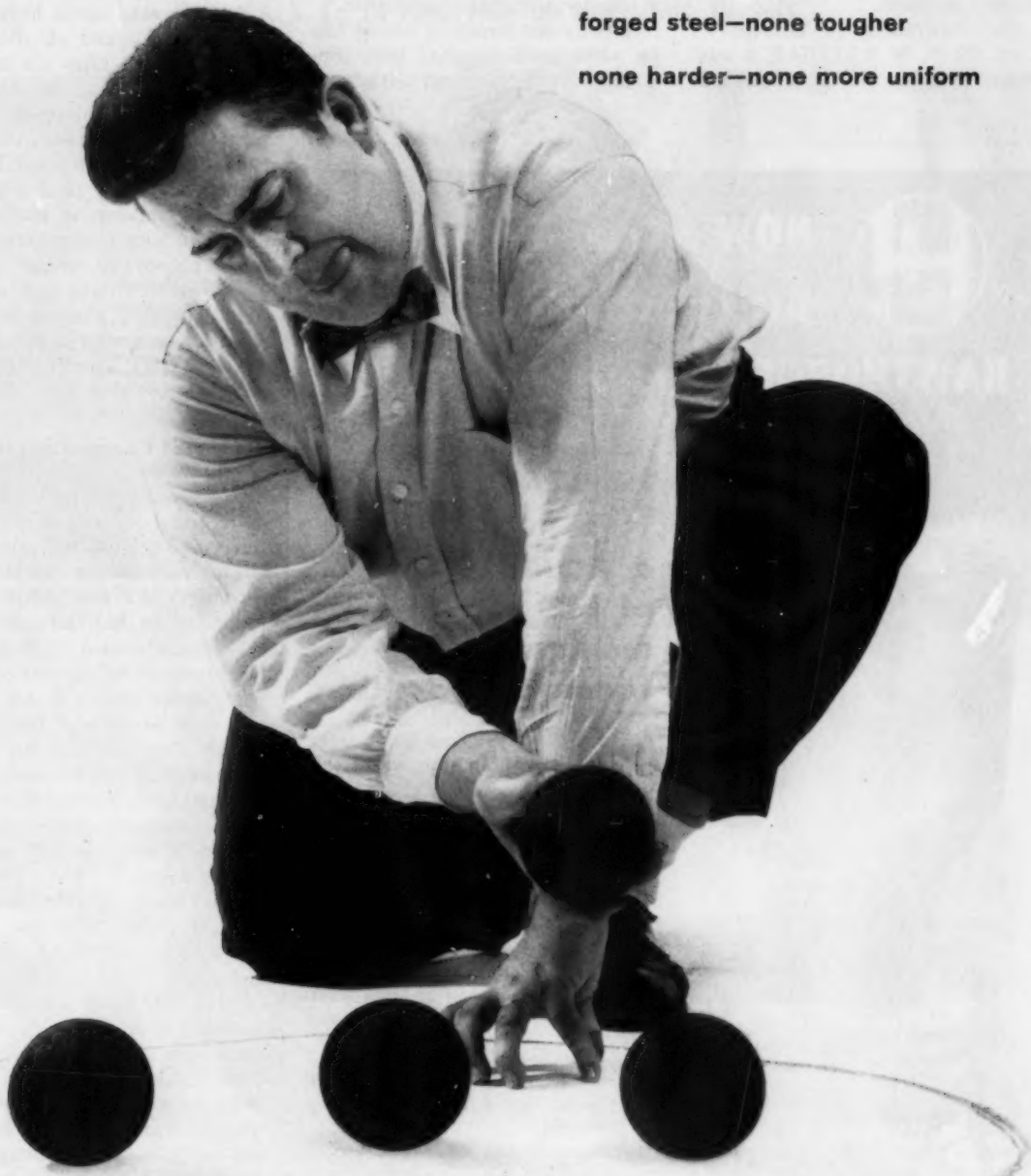
Whenever performance counts . . .

USS Grinding Balls

forged steel—none tougher

none harder—none more uniform



USS

TRADEMARK

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company

United States Steel

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no restrictions, although it is situated in a residential area.

Recently the higher court held that if it was understood among buyers of lots in a subdivision that the lots are sold exclusively for residential purposes, the fact that deeds to a few lots do not contain this restriction will not enable a lot owner to construct or use his lot for business purposes.

For illustration, in *Grange v. Korff*, 79 N. W. (2d) 743, it was shown that lots in a subdivision were advertised in newspapers as "beautiful new suburban homesites." Also, the deeds to a majority of the lots contained this clause: "Said lot shall be used only for private residence purposes."

Later on Korff purchased lot 31 for $6,000. After Korff acquired the lot, he did grading, built a road, and otherwise improved the land as a site for a business enterprise.

Twenty-one owners of nearby lots on which residences had been constructed filed suit and asked the court to enjoin Korff from constructing the business property. The higher court issued the injunction, saying:

"Lots in the plat comprise a strictly residential area. Absence of restrictions from some deeds did not negative the existence of a general scheme or plan."

Freight Rate Discriminations

A few weeks ago a higher court held that any and all discriminations in freight rates are unlawful.

For illustration, in *California Portland Cement Company v. Public Utilities Commission*, 315 Pac. (2d) 709, the California Portland Cement Company filed suit to obtain the annulment of orders of the Public Utilities Commission. These orders caused the cement company to pay higher freight rates on materials than were charged by a steel company on similar materials.

The higher court reversed the orders saying that such differences are unlawful.

Rebate of Commissions Unlawful

Last month a higher court held that it is unlawful for an employer to receive back any part or all of commissions paid to a salesman.

For example in *McDonald v. Wockner*, 267 Pac. (2d) 97, the testimony showed facts, as follows: A salesman named McDonald sued his employer to recover wages he had rebated to the dealer. During the trial McDonald testified that shortly after receiving his commissions each month he would go into his employer's private office and pay him in cash his commissions which exceeded the sum of $350 per month wages.

The lower court awarded McDonald $3,990 damages, and the higher court approved the verdict, saying:

"It would seem that the state is as much concerned with preventing employers from coercing employees into making secret rebates from their wages as with preventing employers from coercing their employees in their right to organize for collective bargaining purposes."

Butler Sand Company, a new enterprise, has begun operations in Butler, Ga. Expansion plans are under way, according to the owners, Lewis Watson Jr. and Joe Brown.

NOW a Cone-Type Rock Bit is included in the HAWTHORNE "*Blue Demon*" LINE!

a COMPLETE LINE of bits for all soft-medium-hard formation drilling

A Cone-Type Rock Bit . . . for Oil and Minerals Exploration and Quarry Blast Hole Drilling . . . is now included in the Hawthorne "Blue Demon" *All-Formation* drill bit line.

Designed for drilling harder formations than are regularly recommended with the patented "Blue Demon" Replaceable Blade Bits, the Cone-Type Rock Bit is available from authorized Hawthorne dealers in 3⅞", 4¼", 4½", 4¾" and 5⅝" sizes.

Consistently priced, wherever you go, ask for Hawthorne Bits for all your drilling requirements.

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"It takes a lot of truck to handle 25- to 30-ton loads!"

—says W. B. Couch, superintendent of the Campbell Limestone Co., Beverly, S. C., in reporting on their GMC Diesels

OFF-THE-ROAD HAULING THAT'S TOO HEAVY FOR LEGAL HIGHWAY TRAVEL is rugged business. Yet Campbell Limestone's GMC Diesels do this day after day—running 10-hour days in the summer. They've never required any pampering—even after the equivalent of 100,000 miles of this work. It's the pay-off on GMC's *all-truck* construction—as the world's largest exclusive commercial vehicle manufacturer can supply it.

SOME OF THE HUGE BOULDERS THAT HURTLE DOWN into Campbell's GMC's are half the size of a sedan. In fact, the specially built dump bodies are of 1-inch steel plate. And underneath is the GMC brand of super-stamina that shrugs off this kind of punishment—for years.

EVEN CLIMBING THE STEEP RAMPS with their huge loads is easy for these GMC's. They've got the power reserve to keep rolling where other trucks can't make the grade. You can thank those high-torque 2-cycle Diesels for that!

GMC TRUCK & COACH—*A General Motors Division*

GMC-America's Ablest Trucks ½ to 45 tons

FOR PROFITABLE SCREENING USE
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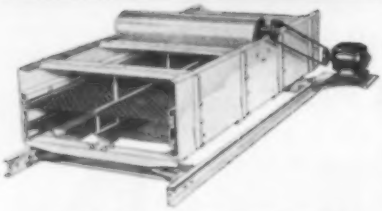

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- FAST SERVICE

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Racine, Wisconsin
Quality Screens Since 1919

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Manufacturers' News

New territorial assignments for four FWD district sales managers in the southwestern area have been announced by the Four Wheel Drive Auto Company, Clintonville, Wis.

The realignment assigns Kenneth Jorgenson, Irving, Tex., to New Mexico and all of Texas, except the Gulf Coast; Keith Liesch, Oklahoma City, to Oklahoma, Kansas, and western Missouri; Glen Pate, Memphis, Tenn., to Tennessee, Alabama, Arkansas, and Mississippi; and Douglas Reed, Houston, Tex., to Louisiana and the Gulf Coast of Texas.

Huber-Warco Company, Marion, Ohio, announces the appointment of Construction Equipment Incorporated, Charleston, W. Va., as a distributor in the entire state of West Virginia, with the exception of a few counties in the northern panhandle.

Morris Machine Works, Baldwinsville, N. Y., has appointed ROBERT G. HUMPHREY district sales representative in central, western, and northern New York.

Mr. Humphrey has been engaged for many years in industrial sales and field engineering. In his new position, he will make his headquarters at the Morris home office in Baldwinsville.

R. G. Humphrey

M. B. Rojtman

MARC B. ROJTMAN, formerly executive vice-president, was elected president of the J. I. Case Company, Racine, Wis. JOHN T. BROWN, formerly president and chairman, was re-elected chairman of the board.

Mr. Rojtman, previously president of American Tractor, came to Case through the merger of these companies in 1957. In addition to his former jurisdiction over sales, engineering, and finance, Mr. Rojtman will now also assume responsibility for manufacturing.

KENNETH R. FISCHER has been appointed to the sales staff of the Fulton Bag & Cotton Mills, Atlanta, Ga. Working out of St. Louis, Mr. Fischer will cover Missouri, Tennessee, Arkansas, Nebraska, southern Iowa, and western Illinois for the firm's Textile Division.

The Milwaukee, Wis., district office of the Bailey Meter Company, Cleveland, Ohio, has moved to larger quarters at 9137A W. Lisbon Ave., Milwaukee. The Milwaukee District territory includes the eastern half of Wisconsin and northwestern Michigan.

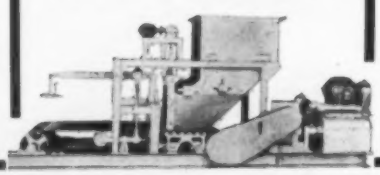
In the SPOTLIGHT

for superior scaling performance

MIXES
FEEDS
BLENDS
WEIGHS
RECORDS
PROPORTIONS

SCHAFFER POIDOMETER

OVER 1500 now serving Industry



Attention naturally focuses on *tested-and-proved* methods . . . that's why bulk material producers standardize on SCHAFFER Poidometers to handle the scaling jobs.

Combining speed, accuracy and automatic operation, these units are a major "assist" in setting output and product-uniformity records.

Durable, trouble-free Poidometers furnish *dependable* weight-information at minimum cost.

Available with remote control weighing and recording devices, and total weight recorder

Write for Catalog No. 5

SCHAFFER POIDOMETER COMPANY
2828 SMALLMAN ST., PITTSBURGH 22, PA.

Enter 140-B on card, page 97

Have you made YOUR contribution to the Navy-Marine Corps Memorial Stadium?

The Naval Academy Athletic Association is now raising funds for a new Navy-Marine Corps Memorial Stadium, scheduled for completion late in 1959. The total cost of the project will be $3,100,000.

Rear Admiral W. R. Smedley III, co-ordinator of the stadium project, has announced that $500,000 is still needed before construction can be completed.

Individuals as well as companies are invited to donate any amount they wish. However, contributions of $100, $500, $1,000 or more will be eligible for the following honors and memorials. (All contributions are tax deductible).

MEMORIAL CHAIR — $100

For any person, officer or enlisted, who has served in the Navy or Marine Corps. Inscription on back of chair will give name, rank and dates of service.

INDIVIDUAL DONATION OF $500

Will entitle donor to lifetime dues-free membership in the Naval Academy Athletic Association. Only a limited number of these special memberships are available.

CONTRIBUTIONS OF $1,000

A company or other organization may dedicate a plaque to employees or members who have served in the Navy or Marine Corp.

MEDAL OF HONOR PLAQUES — $1,000

Special plaques may be dedicated to Navy or Marine Corps holders of the Congressional Medal of Honor.

For further information write:

Rear Admiral W. R. Smedberg III
Memorial Stadium Project
P. O. Box 777
Annapolis, Maryland

This announcement published as a public service by Pit and Quarry Publications, Inc.

perfect balance of hardness and toughness for the long economical grind

The alloying, forging and heat treating techniques used by Sheffield assure unvarying quality to the very core of every Moly-Cop ball. This is why they are known for long service and high production economies — why they have become the STANDARD OF COMPARISON AROUND THE WORLD.

SHEFFIELD

ARMCO®

MOLY-COP

COPPER-MOLYBDENUM-ALLOY

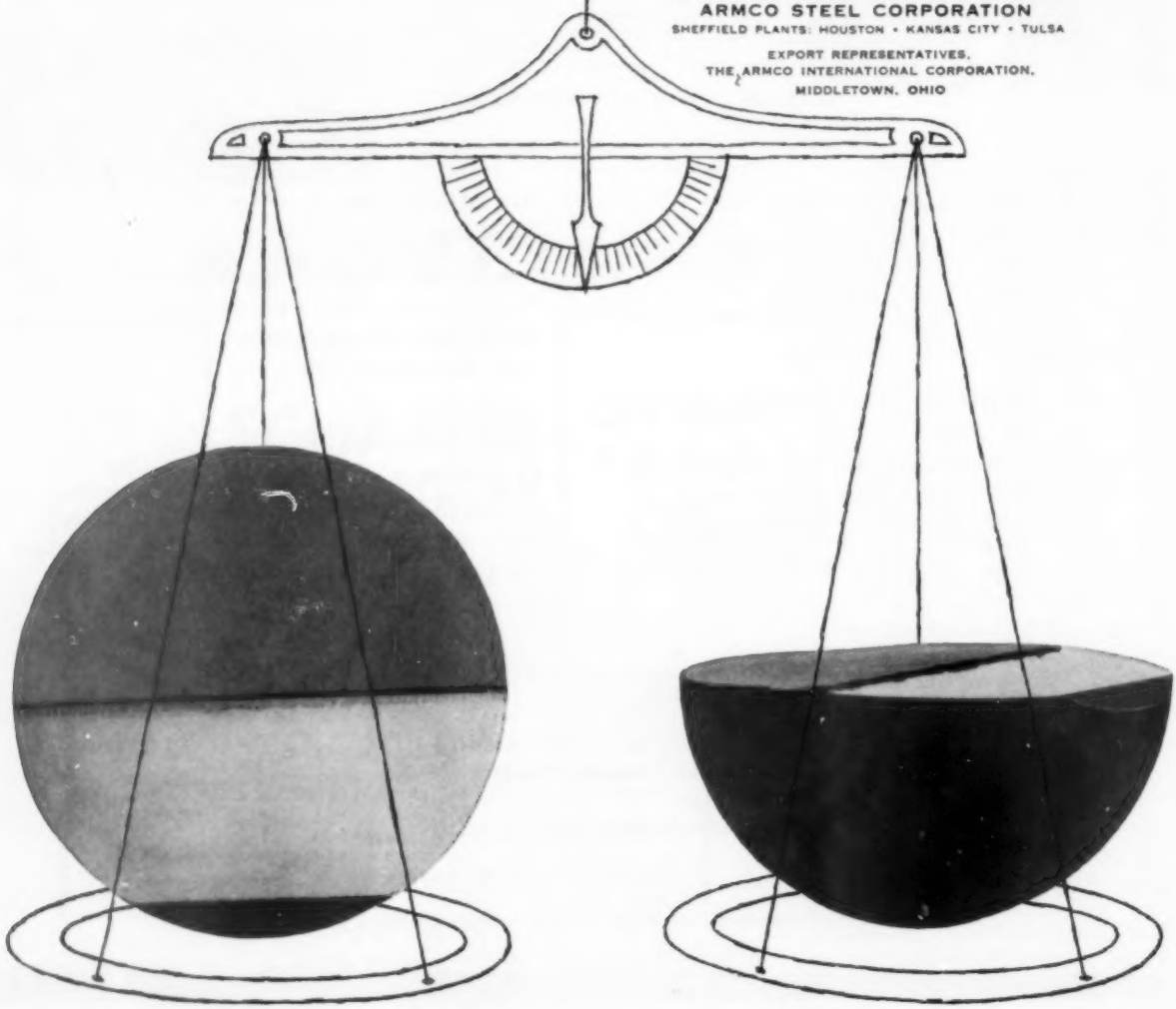
Grinding Balls

SHEFFIELD DIVISION

ARMCO STEEL CORPORATION

SHEFFIELD PLANTS: HOUSTON • KANSAS CITY • TULSA

EXPORT REPRESENTATIVES,
THE ARMCO INTERNATIONAL CORPORATION,
MIDDLETOWN, OHIO



A new advertising and sales promotion program, available cost-free to dealers, has been adopted by Blaw-Knox Company's Construction Equipment Division, Mattoon, Ill. The new program follows the recent cancellation of a company-dealer co-operative arrangement in favor of a dealer aid method supported entirely from Construction Equipment Division funds.

The program includes national and regional advertising, publicity, dealer identification, direct mail, sales training, and product literature.

National advertising—A complete trade publication schedule of performance results ads.

Regional advertising — A 12-month campaign in the leading publication in a dealer's area over dealer signature. A full-page announcement ad is offered in a publication of dealer choice for a new branch office opening. Blaw-Knox will provide materials for a complete local campaign.

Publicity—Supplements advertising in publicizing a dealership.

Direct mail—A series of mailers for carefully selected lists of prospects in a dealer area. The mailings are designed to tie in with national and regional advertising.

Product literature—All bulletins contain action pictures of company equipment for sales training, prospects, and product presentations.

Sales training—Films for sales meetings and product presentations.

Dealer identification—Three sizes of Blaw-Knox identification decals and an attractive fluorescent sign are available for display.

CARL G. LINK has been named to the new position of eastern regional manager of the Boston Woven Hose & Rubber Company, Division of American Biltrite Rubber Company, Inc., Boston, Mass.

The eastern regional territory will include the areas from New York State to New Orleans, La., with headquarters in New York City.

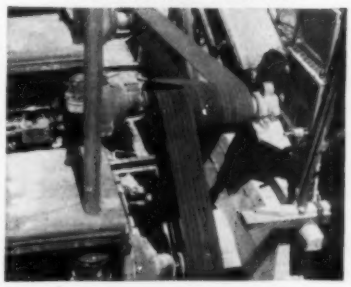
HOWARD W. JEFFCOCK has been promoted to the position of assistant to the president of the Morris Machine Works, Baldwinsville, N. Y. Mr. Jeffcock was previously district sales manager in upper New York State.

Thermoid Conveyor Belting on the job at the rock quarry of the V. R. Dennis Company, San Diego, California.

Belting that's Built to Take It!

Years of service on the toughest jobs have proved that Thermoid Conveyor Belting gives dependable service during its extra long life . . . cuts downtime to a minimum.

Cut costs with Thermoid Multi-V Belts . . .



. . . and Thermoid Hose

One big reason . . . superior construction: belt carcass and cover are welded into a single unit by Thermoid's exclusive impregnation process.

Another . . . top grade materials: Thermoid's specially woven, finest quality reinforcement enables Thermoid Conveyor Belting to trough easily, withstand shock loading as no ordinary belt can—yet it is flexible enough to avoid internal heat build-up.

Your Thermoid Distributor can help you select the conveyor belt that best suits your *specific* materials handling requirements.

Thermoid

Thermoid Company
Trenton, New Jersey • Nephi, Utah

Complete facilities for the manufacture and servicing of drill steel have been installed in the new plant of Brunner & Lay in Sacramento, Calif. Claude Thomas is plant superintendent.

Large stocks of carbide Rok-Bits and allied air accessory tools will be maintained at 7500 14th Ave. in Sacramento.

HENRY NEWHOUSE, formerly assistant to the sales manager, has been promoted to assistant sales manager of the Axle Division of the Eaton Manufacturing Company, Cleveland, Ohio.

Mr. Newhouse joined Eaton as a sales assistant in the Axle Division in 1945. In 1952 he was promoted to assistant to the sales manager of the division.

NED R. ROUDABUSH has been named manager of basic sales and technical service at H. K. Porter's Refractories Division, Pittsburgh, Pa.

The Yale & Towne Manufacturing Company, Batavia, N. Y., has appointed four new distributors for its *Trojan* line of tractor shovels.

Korte Brothers, Inc., with offices in Fort Wayne and South Bend, Ind., will handle the *Trojan* line in northern Indiana.

Hawkins Equipment Company, Memphis, Tenn., has been named distributor for western Tennessee.

Ingram-Houston, Inc., Houston, Tex., will be the *Trojan* distributor for east-central Texas.

Construction Service Equipment Company, Omaha and North Platte, Nebr., will cover the entire state of Nebraska and the nine counties in western Iowa bordering Nebraska.

Dorr-Oliver Incorporated, Stamford, Conn., has elected WILLIAM J. FOX vice-president for the field of technological growth, and DR. ELLIOT J. ROBERTS company technical advisor. Creation of these two new posts are the first steps of a research and development reorganization.

BYRON PYLE has been elected president of the Kennedy-Van Saun Manufacturing & Engineering Corporation, New York, N. Y. Mr. Pyle has been associated with the Kennedy-Van Saun organization for 13 years, serving as assistant to the president, vice-president, and executive vice-president.

Byron Pyle

J. T. Moore

Announcement has been made of the promotion of JUDSON T. MOORE to regional sales manager in the Cleveland office of the Standard Products Division of the Stephens-Adamson Manufacturing Company, Aurora, Ill.

Mr. Moore has served with the company in various capacities since 1939. Most recently he was assigned to a sales position in the Chicago Sales office of the Standard Products Division.

The appointment of C. B. CURRENCE as southern regional manager, with headquarters in Atlanta, Ga., is announced by the Euclid Division, General Motors Corporation, Cleveland, Ohio. Mr. Currence replaces CHARLES B. PACE, who has resigned to establish a Euclid dealership in Kansas.

Euclid's southern region includes Texas, Arkansas, Louisiana, Mississippi, Alabama, Kentucky, Florida, Georgia, North Carolina, South Carolina, Tennessee, West Virginia, and Virginia.

Joy Manufacturing Company (Canada) Ltd., a subsidiary of the Joy Manufacturing Company, Pittsburgh, Pa., has announced recent changes in its management.

JAMES A. DRAIN, formerly president, has been elected chairman of the board, and D. W. M. Ross has been elected to succeed Mr. Drain as president.

"WORLD'S MOST RESPECTED MOTOR"

And no wonder . . .

because Brook A. C. Motors have gone quietly about their business, dependably delivering power to industries around the world for over half a century.

A look at the service charts and maintenance records of hundreds of users shows why the Brook has become the "Worlds Most Respected Motor". All standard types . . . 1 to 600 HP . . . warehouse stocks, ready for shipment, and Factory Representation in major industrial centers. Send for brochure and name of your local Brook Dealer.

world's most respected motor

BROOK MOTOR CORPORATION

3553 W. PETERSON AVE., CHICAGO 45, ILLINOIS

SINCE 1904 BROOK MOTOR CORPORATION

Enter 144 on card, page 97

See How Much This User Saved on a Typical Operation:

If loaded with all dynamite, cost would have been:

4210#	Dynamite (Main & deck charge)	$829.33
1600′	Primacord	$ 50.32
20	M.S. Connectors	$ 10.51
	Total	$890.16

Actual cost with Spencer Prilled Ammonium Nitrate:

1002#	Dynamite (Primer & deck charge)	$214.88
3290#	Ammonium Nitrate	$119.09
40 gals.	#2 Diesel fuel	$ 5.20
1600′	Primacord	$ 50.32
20	M.S. Connectors	$ 10.51
	Total	$400.00

SAVINGS ON 21 HOLES — 55% or $490.16

Compare these actual costs for a typical 21-hole blasting operation, as reported by a midwestern cement company to Spencer Chemical Company, makers of Spencer Prilled Ammonium Nitrate. Present delivered cost of Spencer Prilled Ammonium Nitrate is about 20% that of the high velocity dynamites.

How This User Saved 55% On The Cost of Blasting 21 Holes

Use of Spencer Prilled Ammonium Nitrate for Blasting Cuts Charges on Materials, Shipping, Storage

"We saved 55% on this typical operation, using Spencer Prilled Ammonium Nitrate in place of conventional rock blasting mixtures!" That's the report of the general manager of a midwestern cement company.

It's safer and more convenient to use Spencer Prilled Ammonium Nitrate, too. That's because prilled ammonium nitrate is *non-explosive before mixed*, and can therefore be shipped or stored with other inert packaged goods.

Spencer's intensive tests using prilled ammonium nitrate include primary open-cut blasting for coal, iron, and rock. In fact, Spencer Chemical Company is prepared to offer you the latest and most complete available data about almost every open-cut blasting situation in this hemisphere.

It costs you nothing to get the full benefits of Spencer's accumulated knowledge and experience in this field. Find out for yourself about this cost-cutting new blasting process. Spencer's special bulletin, "Cut Blasting Costs with Spencer Prilled Ammonium Nitrate," and the most expert technical advice in the country are yours for the asking. Mail the coupon—today!

SPENCER®

MAIL THIS COUPON:

Spencer Chemical Company
Sales Supervisor,
Industrial Ammonium Nitrate
402 Dwight Building
Kansas City 5, Missouri

☐ Please send me free Spencer bulletin, "Cut Your Blasting Costs with Spencer Prilled Ammonium Nitrate."

☐ Please have a Spencer Technical Service Representative call—without cost or obligation to me.

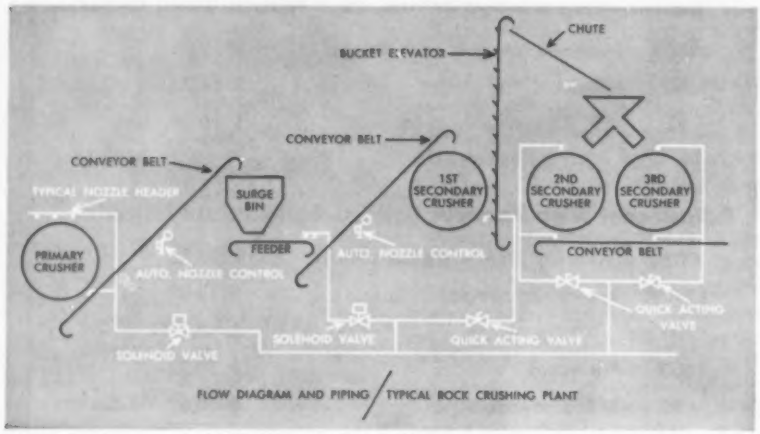
Name_____

Company_____

Address_____

Post Office_____ State_____

JOHNSON MARCH ► chem-jet DUST CONTROL SYSTEM



DUST PROBLEM SOLVED economically at typical rock crushing plant. Drawing shows location of Chem-jet applications after system was engineered by Johnson-March.

NOW YOU CAN AFFORD DUST CONTROL

At a fraction of the cost of other methods, Chem-jet brings you efficient, practical dust protection. Chem-jet solves your dust problem by attacking dust at its source. It is the only system of its kind that effectively *prevents* dust from becoming airborne.

- **Low-Cost Dust Control—**

  No other system compares to Chem-jet for low first cost, low operation and maintenance.

- **Each Installation Engineered—**

  To solve each specific dust problem, Chem-jet systems are specially engineered to meet all requirements.

- **Effective Dust Control—**

  Carries through from crushers to stock pile without affecting screens.

Engineering analysis of your dust problem will be made at no obligation. Johnson-March Corporation, 1724 Chestnut Street, Philadelphia 3, Pa.

JOHNSON MARCH DUST CONTROL ENGINEERS

Enter 146 on card, page 97

Napco Industries, Inc., Minneapolis, Minn., manufacturer of the four-wheel-steer, four-wheel-drive *Crab* tractor, has announced that Ottawa Steel, Ottawa, Kans., has been recognized as a Napco-approved attachment manufacturer.

To date, Ottawa has designed two attachments specifically for the *Crab* tractor—the Model SS-44 front end loader, with a ¾ cu. yd. capacity; and the Model LX-44 backhoe which digs to a depth of 12½ ft.

AUSTIN GOODYEAR, executive vice-president of Hewitt-Robins, Inc., Stamford, Conn., has been elected president of the company, succeeding THOMAS ROBINS JR., who has held the dual positions of chairman of the board and president. Mr. Robins will continue as chairman of the board and chief executive officer.

Mr. Goodyear started with Hewitt-Robins in 1941 in the manufacturing department of the company's Passaic, N. J., plant. He left this job in 1943 to join the U. S. Air Force, and returned to the plant in 1945. He was appointed production manager in 1947, and assistant to the vice-president in charge of sales in 1948. He was elected to the board of directors in 1952 and a vice-president in 1953, followed by promotion to executive vice-president in 1955.

Following the recent name change of the Rockwell Spring and Axle Company, Detroit, Mich., to the Rockwell-Standard Corporation, the former Timken-Detroit Axle Division becomes the Transmission and Axle Division.

In addition to Timken-Detroit axles, the division manufactures a wide range of transmissions, torque converters, and special power transmission units.

LOUIS A. DEPOLIS has joined the LeTourneau-Westinghouse Company, Peoria, Ill., as vice-president in charge of marketing. Mr. DePolis was formerly associated with the Industrial Truck Division of the Clark Equipment Company, where he had served as director of sales since 1953.

Here's EXTRA STABILITY for EXTRA PRODUCTION ... Greater Operator Comfort

Ratio of Wheelbase to Length is Higher on the TL-20D TRACTOLOADER®

Another example of Tractomotive common sense design

Here is the kind of stability you need for high-production digging and for moving *full* buckets *fast* over rough or hilly ground. No loss of power and traction getting loads . . . no tipping and spilling traveling with loads.

That's because the 7'9" wheelbase on the TL-20D is up to a foot longer than on comparable loaders . . . and the length with bucket at carry is a compact 18 feet.

This makes the TL-20D wheelbase 43 percent of over-all length with bucket at carry — well above other loaders.

This EXTRA STABILITY is one more reason why you get EXTRA PRODUCTION with the TL-20D. Here is another Tractomotive design difference that makes a performance difference — and a profit difference!

There Is A Fast-Working TRACTOLOADER To Fit Every Job — 5 Models — ½ cu yd to 2¼ heaped . . . two and four-wheel drive.

SOLD AND SERVICED BY YOUR ALLIS-CHALMERS CONSTRUCTION MACHINERY DEALER

Send For Free Descriptive Literature ▶

TRACTOMOTIVE

TRACTOMOTIVE CORPORATION, DEERFIELD, ILLINOIS

TRACTOMOTIVE CORPORATION, Dept. PQ
Deerfield, Illinois

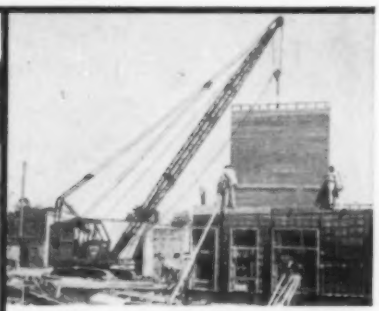
☐ Please send TRACTOLOADER catalog
☐ Have salesman call

Name .....
Title .....
Company .....
Address .....
City ..... State .....

How BANTAM saves you money...

IN THE PIT . . . users get production up to 100 cu. yds. per hour digging sand or gravel with the full-revolving speed of a BANTAM shovel or dragline. This T-35 BANTAM shovel with dumping height up to 14'11", feeds a portable crusher and "doubles" on scattered assignments. With its amazing versatility and the mobility to go quickly from job to job, BANTAM offers you low purchase price, low operating costs and the big production to outwork many larger and costlier rigs.

IN THE YARD . . . a BANTAM Self-Propelled (with complete one-man operation) is the ideal machine for loading trucks and hoppers. Clamshell delivers up to 80 cu. yds. per hour with fast accurate spotting and easy maneuvering.



ON THE SITE . . . for handling concrete forms, pouring concrete and other tasks, a crawler-mounted BANTAM assures solid footing in soft mud or sand with ground pressures as low as 2½ lbs. per sq. in. Maneuvers easily in tight spots.

BANTAMS are available on 3 different types of mountings with lifting capacities up to 8 tons. All BANTAMS work with 10 different quick-change attachments. BANTAM is the most job-proved rig in the industry. Write for literature today.

RP-186

SCHIELD Bantam Co.

World's largest producer of truck cranes and excavators

219 Park Street, Waverly, Iowa, U.S.A.

Enter 148 on card, page 97

AL TRAIL, who has headed the Rochester, N. Y., office of Vickers Incorporated, Detroit, Mich., has been promoted to district sales manager of the company's Cleveland office. He replaces ARTHUR VAN WORMER, who was transferred to head the firm's Detroit sales office.

Al Trail

Lee Gilbert

Owatonna Tool Company, Owatonna, Minn., has announced the appointment of LEE GILBERT as district sales manager in southern California and Arizona.

Mr. Gilbert has had considerable experience in the industrial and heavy equipment fields. He served as a factory representative for the last four years, handling several lines of hydraulic equipment.

Lovejoy Flexible Coupling Company, Chicago, Ill., producer of power transmission equipment, has acquired controlling interest in the Hi-Lo Manufacturing Company, formerly Equipment Engineering Company, of Minneapolis, Minn. This acquisition augments the present Lovejoy variable speed pulley line with a complete range of cam-controlled units from fractional to 5 hp.

Hi-Lo will continue operations in Minneapolis under the presidency of V. G. Nordley.

Field Machinery Company, Cambridge, Mass., has been appointed distributor for the complete line of LeTourneau-Westinghouse earth-moving, hauling, and grading equipment in eastern Massachusetts, Rhode Island, and all but the northern part of New Hampshire.

CARL CLAUS was elected a vice-president of The Babcock & Wilcox Company, New York, N. Y., at a recent meeting of the board of directors.

Dump body mounted on Dodge 900 chassis with Custom cab.

Dodge Heavy-Duty Finance Plan is designed to save you money!

Need a new truck, but need to watch your working capital, too? The Dodge retail finance plan for heavy-duty trucks was designed for just that situation. It lets you operate modern, efficient trucks without burdening yourself with excessive finance charges.

Designed with the same understanding of truck problems that has made Dodge *Power Giants* outstanding, the Dodge Heavy-Duty Retail Finance Plan is tailored to your needs. Whether you need one truck or several, you can finance your purchase with a minimum down payment, and with lowest financing cost. Payments can be arranged over an extended period.

What kind of equipment can be financed with this plan? Any Dodge medium-duty, heavy-duty (400 through 900 models) or four-wheel-drive trucks, plus extra equipment, including bodies mounted on the trucks.

This new plan makes it both easy and economical for you to get *Power-Giant* advantages: exclusive Power-Dome V-8 engines that keep maintenance at a minimum . . . rugged "Job-Rated" construction . . . famous Dodge economy and dependability . . . advanced Dodge styling.

Let your Dodge truck dealer show you how this Heavy-Duty Retail Finance Plan helps truck operators with established credit own thrifty new Dodge *Power Giants*. See your dealer soon.

DODGE *Power Giants*

Mining company official says—

MARION's LIGHTWEIGHT FRAME TRAILER UNIT is the BEST we've ever used!

This 27-yard body with F-715-T-204 front end hoist is dumping a 44,000-pound load of coal in six-foot high stockpiles.

This Marion lightweight frame trailer and front end hoist unit has made a hit with its owners in their coal hauling and dumping operation.

While the unit has been in operation only 60 days, James Davidson, vice president of the J & M Mining Co., New Philadelphia, Ohio says, "It is by far the best unit the company has ever used."

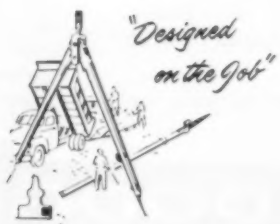
The main features he praises are the extra payload and better job suitability benefits made possible by eliminating longitudinals from the underside of the body. Another feature he praises is the inverted hoist mounting that keeps the hoist sleeves oiled and prevents foreign matter from collecting in the packing area.

The J & M Mining Co. mines and processes 400 tons of coal daily. Two Marion trailer dump units help haul the processed coal to various locations in Ohio.

Let your Marion Distributor tell you all about the extra payload benefits of this unit for all types of hauling jobs.

MARION
BODIES AND HOISTS

MARION METAL PRODUCTS CO.
MARION, OHIO, U.S.A.



Enter 150 on card, page 97

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., announces the appointment of RICHARD L. ENGEL as manager of the Industries Group Pacific Region. Mr. Engel had been manager of the Group's Los Angeles district since 1939.

DONALD E. STEELE becomes manager of the Los Angeles district, succeeding Mr. Engle. He was formerly manager of petroleum and chemical sales at Los Angeles.

WILLIAM C. GERMO has been appointed sales representative for the Leschen Wire Rope Division, St. Louis, Mo., a division of the H. K. Porter Company, Inc., New York, N. Y. Mr. Germo will cover northern Illinois, except the metropolitan Chicago area, and southern Wisconsin.

L. W. ADAMS has been promoted to the position of manager of V-belt sales for the Goodyear Tire & Rubber Company, Akron, Ohio, replacing J. F. Taylor, who is retiring.

Mr. Adams, southern region sales manager for Goodyear's Industrial Products division since 1953, will operate from the firm's belting plant at Lincoln, Nebr.

Raybestos-Manhattan, Inc., Passaic, N. J., announces changes in its northeast and Philadelphia districts.

JOHN MCKINLAY has been appointed manager of the northeast district, replacing STEWART MONROE, who was named special representative—national accounts.

In the company's Philadelphia sales district, R. G. REIGELMAN has been transferred from Maryland to take up sales duties in northeastern Pennsylvania. W. A. CLEMENS has joined the Philadelphia district as sales representative, and will cover most of the territory previously covered by Mr. Reigelman.

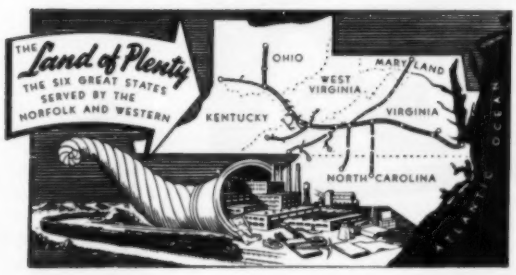
Also announced is the establishment of a Minneapolis sales district, with EDWARD E. STEINBAUER as manager. Mr. Steinbauer is assisted by WILLIAM R. HOUSTON and HILTON N. SCHUCHMAN, sales representatives.

We all like to watch things grow!

Every business man seeking a new industrial site hopes to put his manufacturing roots down where they will take hold . . . where they will produce a growing, prospering plant.

Many manufacturers have found fertile ground in *The Land Of Plenty*, the progressive six-state territory served by the Norfolk and Western. Here the profitable growth of new plants is nurtured by dependable workers, nearness to markets, abundant raw materials, ample water and power, dependable N&W transportation and other elements.

There are many excellent industrial sites in *The Land Of Plenty*, and N&W plant location specialists can help you find the one suited to your requirements. The competent advice and assistance these men offer is yours without obligation . . . and your inquiry will be kept in strictest confidence.



Write, Wire or Call—

L. E. Ward, Jr., Manager
Industrial and Agricultural Dept.
Drawer PQ-801 (Phone Diamond 4-1451, Ext. 474)
Norfolk and Western Railway
Roanoke, Virginia

Norfolk and Western RAILWAY

Everybody profits ...because

you belong

in this picture!

The publisher of this magazine is often asked what kind of a man you are . . . and how many like you are receiving his magazine.

Why is he asked?

Because the *advertisers* (whose money is his chief income) insist upon knowing the types of people (by industry or profession, by title) for whom the magazine is edited — and how many are getting it.

In order to standardize on the presentation of such information to advertisers and to have its accuracy vouched for by a disinterested third party, nearly 450 publishers have joined some 200 leading advertisers and advertising agencies in a non-profit organization called Business Publications Audit.

The purpose of BPA is to assure advertisers . . . by frequently checking and rechecking . . . that each member publisher is indeed distributing his magazine, in the *numbers* promised, to the *types* of men he promised would receive it.

The BPA symbol in this magazine means that *you belong* . . . that because of your occupational interests you are qualified, in the eyes of the advertisers, to receive it.

The advertiser can thus tell whether he's getting his money's worth.

The publisher has a better sales story to prospective advertisers because his magazine is "audited."

And you, the reader, get more value from the magazine because both the advertisers and editors, knowing what your special occupation is and what your interests are, are better able to prepare advertising and editorial material that will be most informative and useful to you.

What you can do

Publishers and advertisers frequently write to magazine readers to learn what kind of articles and advertisements appeal most. Cooperate with them — will you? — by answering their questions . . . in the interest of better communications between makers and markets.

BUSINESS PUBLICATIONS AUDIT OF CIRCULATION, INC.

420 Lexington Avenue New York 17, N. Y.

BPA

A NON-PROFIT, TRIPARTITE MEMBERSHIP CORPORATION OF ADVERTISERS, ADVERTISING AGENCIES AND BUSINESS PUBLICATIONS

Enter 153 on card, page 97 →

0.5 seconds

1.0 seconds

1.5 seconds

The little puff of smoke in the foreground is a signal bomb for the photographer

2.0 seconds

3.5 seconds

7.0 seconds

2,750,000 pounds of Du Pont "Nitramex®" 2H Removes Ripple Rock

Why it was chosen for this biggest of all blasts . . .

For Its Safety—The inherent safety of blasting agents helped win the nod for "Nitramex" 2H over conventional dynamites for a complex coyote blast of this sort.

For Handling Convenience and Water Resistance—Packed in hermetically sealed metal containers easily carried and stacked, and producing no headache from handling, "Nitramex" 2H was a natural.

For Strength—Plenty of energy was needed to knock off two underwater peaks, and "Nitramex" 2H supplies power equal to 80% Gelatin, higher than any other blasting agent.

For High Density—The blast required extremely heavy charges. "Nitramex" 2H, with the highest density of any commercial explosive, insured getting the required loads where they were needed regardless of size of coyote.

For Shattering Power—The high velocity and power of "Nitramex" 2H was needed to insure adequate breakage and dispersal of rock in order to provide required channel depth without dredging.

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Better Things for Better Living . . . *through Chemistry*

A welder caused us to caucus

The note from an employee suggestion box read "How come a company like this hasn't got the U. S. Savings Bond Payroll Savings Plan". It was signed by a welder in the fabricating department.

Since we actually *do* have Payroll Savings this told us two things: (1) Probably more employees than we imagined wanted the advantage of buying U. S. Bonds automatically through Payroll Savings. (2) We had grown lax in bringing our Plan to their attention.

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The results were amazing. Employee participation shot up to a percentage that we could take pride in. There was no "hard selling", nor was work interrupted. Our people wanted the security U. S. Savings Bonds offer them.

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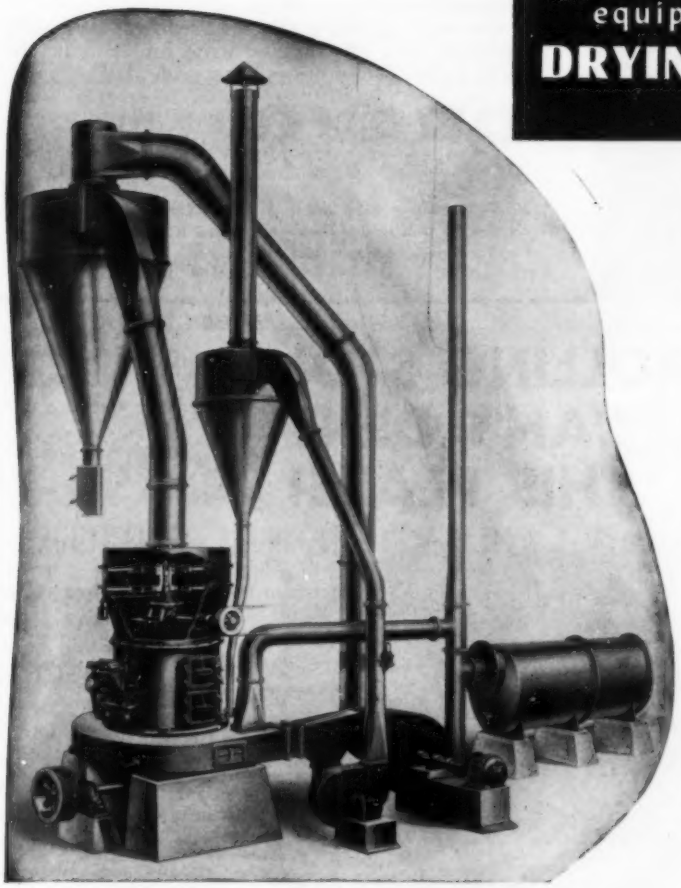
DRYING and GRINDING
...simultaneously



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THE fine grinding of limestone is an ideal application for the Raymond Roller Mill.

It offers special advantages in producing the finer grades: suitable for agricultural purposes, mineral fillers, mine dust, chemical processing, as well as many special uses.

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1. The Roller Mill with Whizzer Separator has easy fineness control over a wide range up to 99.9% passing 325 mesh or better, and instantly adjustable while operating.

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2. By the use of Flash Drying accessories, the Mill can dry and grind the material in one operation . . . which is by far the most economical method.

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3. Units available in several sizes to provide wide range capacity up to 30 tons or more per hour for Super Roller Mills.

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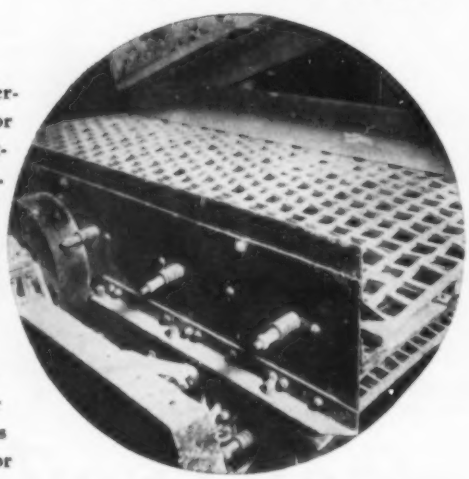

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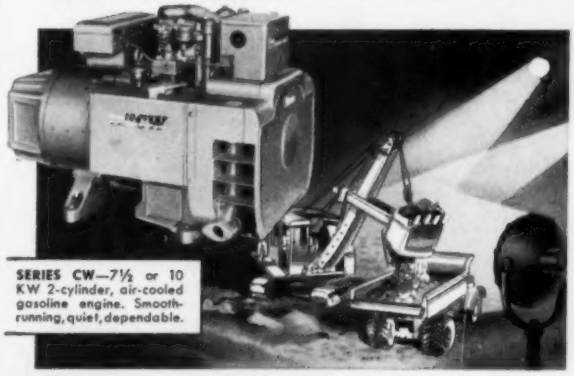

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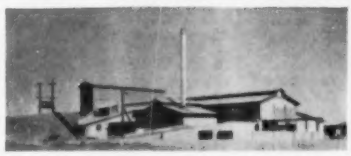

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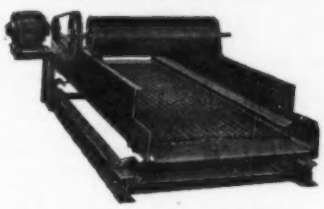

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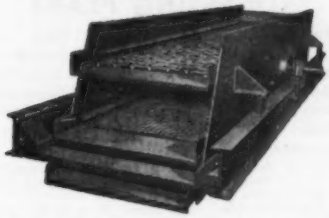

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GENERAL DUTY SCREENS, TYPE A: Eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. **WRITE FOR BULL. #1086.**

Model Number	Screening Price	No. of Decks	Sale Price
124A	2'x4'	1	$ 443
224A	2'x4'	2	472
126A	2'x6'	1	472
226A	2'x6'	2	501
134A	3'x4'	1	504
234A	3'x4'	2	570
136A	3'x6'	1	581
236A	3'x6'	2	688
336A	3'x6'	3	956
138A	3'x8'	1	675
238A	3'x8'	2	815
338A	3'x8'	3	996

HEAVY DUTY MODELS, TYPE B: Four bearing positive throw eccentric shaft: 3' x 6' to 5' x 14', 1 to 5 decks. **WRITE FOR BULL. #1087.**

Model Number	Screening Area	No. of Decks	Sale Price
336B	3'x6'	3	$1620
436B	3'x6'	4	1685
138B	3'x8'	1	1510
238B	3'x8'	2	1620
338B	3'x8'	3	1735
248B	4'x8'	2	2310
348B	4'x8'	3	2440
2410B	4'x10'	2	2400
3410B	4'x10'	3	2550
2412B	4'x12'	2	2590
3412B	4'x12'	3	2970
4412B	4'x12'	4	3165

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

CONVEYOR PRICES INCLUDE BELTING

Complete Pre-Fab sections of 8" Jones & Laughlin Jr. I Beam Frame Conveyors quickly and easily joined together on the job. These beams are rolled with .20% Copper Content. Atmospheric exposure tests disclose that Junior Beams with .20% Copper have as much as four times the resistance to corrosion as non-copper steels. Braced with structural angle, welded to frame for maximum rigidity. Equipped with 5" roll diameter idlers and return rolls, 20" diameter head pulley and 16" diameter tail pulley, mounted on 2¼" or 2 7/16" diameter shaft. We take our loss on our stock of short length belting. You can save as much as 50% on BONDED CONVEYOR SPECIALS, with conveyor belting in two pieces. Belt is new 4-ply, 28 oz. duck, ⅛" top rubber cover x 1/32" bottom cover Major grade belt and is Fresh Stock made by leading manufacturers. **WRITE FOR BULLETIN #1138.**

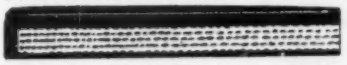
Bonded troughing idler conveyors also available in Truss Frame Construction. **WRITE FOR BULLETIN #1189 AND PRICES.**

A full line of accessories available, including carrying and return belt covers.

Belt Width	Length of Conveyor	List Price	Sale Price	Add or Deduct Per Foot
14"	25'	$1397	$ 722	
14"	50'	2222	1144	$16.84
14"	85'	3377	1733	
16"	20'	1262	636	
16"	45'	2137	1088	18.04
16"	60'	2662	1359	
16"	90'	3712	1900	
18"	25'	1477	794	
18"	45'	2217	1166	
18"	70'	3142	1648	19.24
18"	85'	3697	1933	
18"	100'	4252	2220	
18"	130'	5362	2797	
20"	25'	1517	828	
20"	60'	2882	1533	20.37
20"	75'	3467	1838	
20"	90'	4052	2145	
24"	25'	1590	898	
24"	45'	2430	1330	
24"	70'	3480	1875	21.78
24"	100'	4740	2514	
24"	120'	5580	2950	
24"	150'	6840	3603	
30"	50'	2911	1617	24.75
30"	70'	3871	2119	
30"	90'	4831	2614	
36"	25'	1818	1118	
36"	45'	2858	1678	27.95
36"	60'	3638	2096	
36"	100'	5718	3214	

NEW CONVEYOR BELTING SAVE UP TO 30%

WE PAY FREIGHT ON 200 POUNDS OR OVER



Major Brand: 12# to 15# Average Friction Pull. 800# to 1000# Average Cover Tensile. Heavy Duty 4-ply, 28-oz. duck, ⅛" top rubber cover x 1/32" bottom rubber cover belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stocks.

Width	Ply	List Price Per Ft.	List Price Per Ft.
14"	4	$3.63	$2.83
16"	4	4.08	2.97
18"	4	4.51	3.29
20"	4	4.97	3.80
24"	4	5.85	4.26
30"	4	7.18	5.21
36"	4	8.51	6.18

Major Bee Brand: 16# to 19# Average Friction Pull, 2500# to 3000# Average Cover Tensile. Skim coat between plies. A high grade of heavy duty 4 and 5-ply, 28 oz. duck, ⅛" top rubber cover x 1/32" bottom rubber cover. These belts are for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal, and other similar materials, both wet and dry. Belts have molded rubber edges.

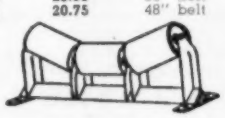
Width	Ply	List Price Per Ft.	List Price Per Ft.
14"	4	$4.31	$3.06
16"	4	4.85	3.46
18"	4	5.39	3.83
20"	4	5.90	4.37
24"	4	6.94	4.94
30"	4	8.53	6.07
36"	4	10.09	7.35
24"	5	8.14	5.78

Other widths, plies, duck weights and cover thickness available at low prices. **WRITE FOR FREE SAMPLE AND BULLETIN #1209.**

NEW IDLERS AND RETURN ROLLS SAVE 25%

3-roll, 5" diameter Troughing Idlers for:

14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50



1-roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with replaceable prelubricated sealed ball bearings. Maintenance is negligible. **WRITE FOR BULLETIN #1138.**

BONDED SCALE AND MACHINE COMPANY

PHONE Days: Hickory 4-2186 — **WRITE FOR FREE CATALOG AND PRICES** — **PHONE Evenings: AX. 1-2213, HU. 6-3156**

110 Bellevue — **Mfrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders** — **COLUMBUS 7, OHIO**

"FASTER FROM FOSTER"

RAIL

& ALL TRACK EQUIPMENT

Nation's Largest Warehouse Stocks

L. B. FOSTER CO.

PITTSBURGH 30 • ATLANTA 8 • NEW YORK 7

CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5

WANTED

1½ to 2½ yd. Drag Scraper Hoist.

FOLKS GRAVEL PIT

Phone 3392 — **Pataskala, Ohio**

FOR SALE

Used 9 K Gyratory Crusher A.C. Spare Parts Included

GARY SLAG CORPORATION

Wab. 2-4082

542 So. Dearborn St. — **Chicago 5, Ill.**

DEPENDABLE USED MACHINES

SPECIAL: Hopto 120 mounted on 1950 Chev. truck w/hydraulic outriggers

Clayton Kerrick steam cleaner	Pioneer 30"x200' conveyor	B-E H-e Hydrocrane
Hoe front for Schield Bantam	24x28 Magnetic pulley	Lorain 41 dragline
Eagle 24"x25' single screw	TD-9 w/B-E bulldozer	A-W ½ yd. shovel
Hopto 120 for HD-5 hi-lift	Bay City 25 ½ yd. hoe	Adams Tandem grader
Hopto 200 on Chev. truck	Mich. T-6K truck crane	Scout backhoe

This equipment rebuilt in our modern plant by expert mechanics. Come see it!

10004 Southwest Highway — **TRACTOR & EQUIPMENT CO.** — **Oak Lawn, Ill.**

COMPRESSORS:
Ingersoll Rand–1055 CFM, XRE, 440 volts.
Ingersoll Rand–1575 CFM, PRE2, 2200 volts.
Ingersoll Rand–1721 CFM, PRE2, 2200 volts.
Ingersoll Rand–2040 CFM, PRE2, 2200 volts.
Ingersoll Rand–3864 CFM, PRE2, 2200 volts.
Ingersoll Rand–4150 CFM, PRE2, 2200 volts.

MODERN STONE CRUSHING PLANT: Complete with 25 x 40 roller bearing Jaw Crusher, two 36" and one 24" Cone Crushers, 4 x 8, 3 deck Screens, Belt Conveyors, Apron Feeders, Truck Scale, Magnetic Pulley, all motors, controls, with or without trucks and shovels.

CLASSIFIERS: 4—Wemco and 2—Akins 78" duplex spiral with tanks 36'6", all complete, new condition.

ROTARY KILNS & DRYERS: 4½' x 40 ft., 5' x 50 ft. and 8' x 40 ft. Rotary Kilns, all modern, gas fired, complete with all equipment, including instruments and controls. One 9 ft. x 120 ft., two 8 ft. x 125 ft. Two Ruggles Coles Dryers class XA18, 104" dia. x 65 ft., new condition. One Ruggles Coles class XH12, 80" x 60 ft., new 1955. One Ruggles Coles class XA, 5 ft. x 30 ft. One 6 ft. x 50 ft. Rotary steam Dryer and one 6' x 50 ft. rotary Cooler. One kiln 10 ft. dia. x 210 ft., ¾" plate.

PULVERIZERS: Hardinge Conical Ball Mills—8 x 36", 8 x 48", 10 x 48", with 200, 250 and 350 synchronous motor. One 6'6" x 21 ft. Tube Mill, stone lined with or without synchro motor and controls.

JAW CRUSHERS: 10 x 15, 10 x 20, 12 x 24, 15 x 36, 24 x 36, 25 x 40, 30 x 42 and 40 x 42". One 18 x 30" and one 24 x 72" sectionalized for underground use.

CAR DUMPER: Link Belt standard gauge, 65 ft. table.

AIR SEPARATORS: Sturtevant 16 ft.

MINE HOISTS: One 10" dia., 10' face double clutched drums, 1250 H.P., 1⅜" rope, 1200 FPM, complete with all controls, excellent condition. Other hoists 100 H.P. to 2500 H.P.

WE BUY AND SELL EQUIPMENT
THROUGHOUT
NORTH AND CENTRAL AMERICA

A. J. O'NEILL
Lansdowne Theatre Building
Lansdowne, Pa.
Phila. Phones: MAdison 3-8300—3-8301

FOR SALE
FELDSPAR GRINDING AND PROCESSING PLANT

Located in Rochester, New York — Railroad and Water shipping facilities on Genesee River. Yearly capacity about 20,000 tons. Public utilities at property. No manufacturing restrictions. Land 4,441 Acres, 11 buildings.

EQUIPMENT
Machine shop tools, office equipment, blowers, screens, bagging machine, electric motors for all drives.
4—Patterson tube mills, 2—6½ ft. x 16 ft. and 2—5½ ft. x 18 ft.
Screw, bucket and belt conveyors.
Hardinge 32"x10' conical Pebble Mill complete with drives clutch and 60 horsepower motor.
Crushers, A-C—10"x24" fine reduction crusher.
A. C. crushing rolls, Taylor 12"x24"—jaw crusher.
Transformers for 440 volt 60 cycle 3 phase service.
Labratory and misc. equipment.
About 400 tons crude feldspar on hand.
Price—$75,000.00
Land alone worth asking price.

Write, Wire or Phone for inspection appointment

ACME EQUIPMENT AND SUPPLY CO.
1637 Sherbrooke St. West Apt. 14
Montreal, Que. Canada—Phone Wellington 2-6335

CABLEWAY 10 TON SAUERMAN

900 Ft. span, fixed steel head tower 125 Ft. high, movable tall tower 60 Ft. high Diesel Power, New 1952, discontinued 1954.

Brew-Woltman & Co., Inc.
50 Church St. New York 7, N. Y.

FOR SALE

1—24"x36" Superior Jaw Crusher No. 35248. Reconditioned. Good as new.
1—36"x14'3" Telsmith Apron Feeder. New. Never taken out of crate.

UNION MINING COMPANY
First Nat'l Bank Bldg. Pittsburgh 22, Pa.

36"x48" Jaw Crusher—Excellent
75 HP 150# Skid Mounted Boiler
150 HP 2300 V. Motor with Starter
66" Raymond Mill—complete—perfect
42"x42" 2-cell Jig; 30' Log Washer
36'x54" Dryer; 21'x60" Ball Mill
2' & 3' Cone Crushers—Excellent
100 HP 125# Scotch Marine Boiler
24"x24" Roll Crusher—Jeffrey

H. & P., 6719 Etzel, St. Louis 14, Mo.

SHOVELS, CRANES & HOES

Insley	"K-12"	½ yd. Dragline or Trench Hoe, Reconditioned.
Insley	"K-12"	½ yd. Used Hoe or Dragline, 1953 Model.
Marion	"331"	⅝ yd. Used Shovel or Dragline.
Byers	"83"	⅝ yd. Used Dragline, 40' Boom.
Manitowoc	"2000"	1¼ yd. Used Diesel Shovel, Torque Converter, Owner operated.

TRACTORS & LOADERS

Terra Trac	"500"	Front End Loader, hydraulic scarifier, like new.
Allis-Chalmers	"TLW"	Used Tractor w/Tractomotive Front End Loader, ¾ yard.
Caterpillar	"D-4"	Used Tractor w/Hyd. Traxcavator, 1953 Model.

TRANSIT MIXERS

Rex	4¼ Yd.	Hi-Discharge Moto-Mixer. Chrysler power, very clean.
Rex	3 Yd.	Hi-Discharge (4¼ yd. Agitator) 1950 model, Mounted Chev. 6400 Tandem axle truck.
Jaeger	3 Yd.	Hi-Discharge (4¼ yd. Agitator) mounted on Chevrolet Tandem Axle Truck.
Smith	3 Yd.	Hi-Discharge (4¼ yd. Agitator) mounted Chevrolet tandem axle truck.

MISCELLANEOUS

Universal	"1824"	R.B. Jaw Crusher, rebuilt 1956.
Universal	"916"	R.B. Jaw Crusher.
Gruendler		Port. Pulverizing Plant, 3 x 8 Feeder, 3 x 8 mill, discharge conveyor, G-M 671 Diesel power, 8 months old.
Dixie		Port. Pulverizing Plant, 3 x 8 feeder, 3 x 8 Iowa screen, 3036 mill, discharge conveyor, GM-671 Diesel power, completely overhauled.
Pettibone-Wood	"820A"	**New** Windrow Proportioner, reduced for quick sale.

NOTE: All This Equipment Located in our Yard.

120 S. Pierpont Phone 4-6706
EIGHMY EQUIPMENT COMPANY ROCKFORD, ILL.

COMPLETE CONCRETE PLANT

1—Complete concrete plan—175 tons, 4 compartment aggregate bins with 3 yd. batcher, scales and bucket elevator, 600 bbl. cement silo with batcher under track screw conveyor and bucket elevator.

Available immediately, Located in Colorado

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Memphis Equipment Co.
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1—6½' x 120' & 8' x 125' kilns

DRYERS
6' x 60' & 7' x 80'

CRUSHERS
1—30" x 36", 18" x 36", 15" x 30", 12" x 24" Jaw Crushers.
2—42" x 16" Allis-Chalmers Crushing Rolls, rebuilt. 36" x 16 rebuilt Sturtevant rolls.
2—24" x 14" Rogers Iron Works Crushing Rolls, Rebuilt.
1—6", 10", 16", 20" McCully Superior Gyratory Crushers.
No. 3 up to No. 12 Gyratory Crushers.

BALL & TUBE MILLS
2—5½' x 20', 6' x 22', 7' x 24' Tube Mills.
1—8' x 10' Rotary Filter.

MISCELLANEOUS
We make new dryers and kilns.

Have you any machinery that you want to sell?

W. P. HEINEKEN, INC.
50 Broad St., N.Y. Tel. Wh. 4-4236

EQUIPMENT FOR SALE

631 Page Elec. Dragline, 200', 8 yd.
9-W Bucyrus Erie Elec. Drag, 200', 8 yd.
723 Page Diesel Drag, 130', 10 yd.
2400 Lima Dragline, 110', 6 yd.
4500 Manitowoc Dragline, 120', 5 yd.
111-M Marion Dragline, 100', 4 yd.
1055 P&H Dragline, 80', 4 yd.
1201 Lima Dragline, 85', 3 yd.
1001 Lima Dragline, 85', 2½ yd.
170-B Bucyrus Erie 6½ yd. Elec. Shovel
150-B Bucyrus Erie 6 yd. Elec. Shovel
120-B Bucyrus Erie 4 yd. Elec. Shovel
1400 P&H 4 yd. Elec. Shovel
54-B Bucyrus Erie 2½ yd. Shovel
802 Lima 2 yd. Shovel
604 Lima 1½ yd. Shovel
Unit 1020 ¾ yard Shovel
Smaller Shovels & Draglines available
600 Reich Heavy Truck Mounted Rotary Air Drill
750 Reich Heavy Truck Mounted Rotary Air Drill
Euclid Trucks—Rear & Bottom Dump
Dozers, Scrapers, Graders, Front End Loaders
Shovel, Drag, Backhoe Attachments
Buckets and Dippers

FRANK SWABB EQUIPMENT CO., INC.
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Hazleton, Pa. GLadstone 5-3658

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EUCLID TRUCKS

Rear and Bottom Dumps

Bucyrus-Erie Draglines, 2½ yd. to 8 yd.
Bucyrus-Erie Shovels, ¾ yd. to 8 yd.
Northwest Draglines, ¾ yd. to 2½ yd.
Northwest Shovels, ¾ yd. to 2½ yd.
Manitowoc Draglines, 2½ yd. to 5 yd.
Manitowoc Shovels, 2½ yd. to 5 yd.
Marion Shovels & Drags, 4 yd. to 9 yd.
Lima Shovels & Drags, 1½ yd. to 6 yd.
Osgood Shovels & Drags, 1½ yd. to 2½ yd.
P & H Shovels & Drags, all sizes.
Caterpillar Graders & Dozers.
Hi-Lift Shovels.
2½ yd. Crawler Crane.
TRUCK CRANES—P&H and Bay City.
51B Bucyrus-Erie Shovel Attachment.
2400 Lima Shovel front attachment.
4500 Manitowoc Shovel front attachment.
DRILLS—6" and 9", diesel and electric.
6 Northwest Shovel and Drag, 1½ yd.
80D Northwest Shovel, 2½ yd., Bargain.
95 Northwest Dragline, 2½ yd., Bargain.
38B Bucyrus-Erie Shovel, Backhoe & Drag.
54B Bucyrus-Erie Shovel, Drag. Bargain.
88B Bucyrus-Erie Shovel, 4 yd.
120B Bucyrus-Erie Electric Shovel, 6 yd.
170B Bucyrus-Erie Electric Shovel, 6½ yd.
9W Bucyrus-Erie Electric Walking Drag, 200' boom, 9 yd. bkt.
200W Bucyrus-Erie Dragline, 125' boom
631 Page Elec. Drag. 200' 8 Yd.
625 Page Diesel Drag. 150' 10 Yd.
955 P&H Shovel and Dragline.
1055 P&H Shovel and Dragline.
C. S. Johnson Automatic Batch Plant.
Used Lowbed Trailers.

Other equipment available not listed above.

WILLIAM LUBRECHT, III
Construction Equipment
311 W. Diamond Ave. • Hazleton, Pa.
Phone: Gladstone 5-4041 or 5-0253

FOR SALE

1 Universal Model 880 Senior R Gravel Plant with 1036 R.B. Jaw Crusher, 3022 R.B. Roll Crusher, 4' x 12' Double Deck Screen, 30" belts, 50' x 30" swivel feed conveyor with 9 cu. yd. feed hopper, with reciprocating feeder, tandem axle, brakes, front dolly, powered by Murphy Model 21 Diesel power unit with 25 kw. auxiliary generator, Serial No. 526X17.

Power unit mounted on separate truck with 275 gal. fuel tank, and electric panel board for generator.

1 Universal Portable Washing Plant with 4' x 16' Simplicity triple deck screen, 36" x 25' Eagle Single Screw Sand Classifier, 72" x 10' Rotary Scrubber, tandem axle, air brakes, all electric power.

Murphy Model ME 4-66 kw. Diesel Generator, Mounted in trailer, with electric panel board, 275 gal. fuel tank.

This equipment has all been completely overhauled this past winter and is in excellent condition and can be seen in operation in Northern Illinois. Units may be sold separately.

For an inspection—CALL or WIRE

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Rockford, Illinois

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FOR SALE

ALLIS-CHALMERS BALL TUBE MILLS, 5'6" x 22' L, 150 HP.
ALLIS-CHALMERS 7' x 24' COMPEB MILL, 450 HP, two-compartment.
MARCY ROD MILL, 4' x 10', 75 HP.
RAYMOND Pulverizer 66" dia., 6 roll.
BUCYRUS Revolving SHOVELS, Models 50-B, 320-B.
ROTARY DRYER & KILNS: 8' x 125', 9 x 30, 7 x 60, 6 x 50', 4'6" x 40', 4' x 30', 3' x 15'.
ROTARY COOLERS: 104" x 30', 104" x 70', Submerged Type, UNUSED.
KENNEDY VAN SAUN GYRATORY CRUSHER, type S, size 49
B & W COAL PULVERIZER, type E, size 32.
INTENSIVE MIXERS, 3', 4', 6' dia.
CEMENT PLANT 1,200,000 Bbl. yearly capacity with 4 De Roll Vertical Kilns.
CONCRETE PLANTS, 400 cu. yd., 150 cu. yd.

WE WILL PAY CASH FOR GOOD USED EQUIPMENT

PERRY EQUIPMENT CORP.
1418 N. 6th St. — Phila. 22, Pa.
POplar-3505

FOR SALE OR RENT

65 ton Whitcomb Diesel Elec. Loco.
44 ton Whitcomb Diesel Elec. Loco.
25 ton Davenport Gas-Elec. Loco.
50 ton American Guy Derrick. 115' Mast, 100' Boom
90 HP Lidgerwood 2d Diesel Hoist
150 HP Amer. #140 3d Gas Hoist
1½ yd. Lima 602 Crane. 110' Boom
3 yd. Manit. #3900 Crane. 100' Boom
2½ yd. Link-Belt K-595 Crane. 120' Bm.
110 HP Clayton Port. Steam Generator
5 yd. Bucyrus 120B Electric Dragline

WHISLER EQUIPMENT CO.
1905 Railway Exchange Bldg., St. Louis 1, Mo.
CHestnut 1-4474

MOTORS AND GENERATORS

All sizes, new and rebuilt. Starters, accessories, pulleys and repair parts. Gear motors, Falk Shaft mounted Speed Reducers, couplings and V-belt drives.

EXPERT REPAIR SERVICE

NUSSBAUM ELECTRIC CO.
220 E. Douglas Avenue — Fort Wayne, Ind.

FOR SALE

Used conveyor belting, 24" wide 7 ply & breaker ply, 3/16" x 3/32" covers. Excellent condition.

LINCOLN MACHINERY
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7 Koehring Dumptors

Model WD60
Serial Numbers D2774 to D4378.

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48"x60" Allis Chalmers Blake Jaw Crusher
36"x48" Buchanan Blake Jaw Crusher
30"x36" Traylor Blake Jaw Crusher
10"x36" Buchanan Blake Jaw Crusher
12"x24" Buchanan Blake Jaw Crusher
10"x20" Power Blake Jaw Crusher
24"x36" Farrell 14B Blake Jaw Crusher
3—24"x54" Allis Chalmers Rolls
25"x36" Telsmith over head eccentric Jaw Crusher
18"x32" Ditto
9"x36" Ditto
10"x36" Ditto
2—36" Telsmith Intercone Crushers
36" Telsmith Gyrasphere Crusher
36" Symons Cone Crusher
10'-40" Good Roads Jaw Crusher
18"x30" Telsmith rolls, smooth shell
16" Telsmith Gyratory Crusher
25" Telsmith Gyratory Crusher
13" Telsmith Gyratory Crusher

BLUE BALL MACHINE WORKS
Blue Ball, Pennsylvania

LIQUIDATION

DONORA ZINC WORKS

Donora, Pennsylvania

(In Conjunction with Kaiser Nelson Co.)

KILNS, DRYERS & FURNACES

1—Traylor 10' x 120' Rotary Kiln.
2—Ruggles Cole 90" x 55' Rotary Dryer.
1—Christie 80" x 65' Rotary Dryer.
2—Herresoff Furnaces, 20' dia. 16 hearth.
1—Herresoff Furnace, 16' dia. 10 hearth.
10—Batch Cadmium Tilting Furnaces.

CONVEYORS & FEEDERS

2—Rubber Belt Conveyors 24" x 315' and 24" x 175' c.c.
30—Rubber Belt Conveyors 18" and 24" x 40' to 80' a.c.
3—Belt Apron Feeders 84" x 22', 48" x 50'.
10—Bucket Elevators, 30' to 80' c.c.
800'—12" to 18" Screw Conveyors with drives.

CRUSHERS, MILLS & SCREENS

5—54" x 24", 48" x 24" Roll Crushers.
1—Hardinge 5' x 10' Rod Mill.
1—Ball Mill 4' x 6'6".
3—Jaw Crushers, 20" x 6", 9" x 15", 5" x 10".
3—Kennedy #3 and #6 Gyratory Crushers.
1—Symons 30" Impact Crusher, 60 HP.
5—Screens, Symons, Tyler, 4' x 5', 3' x 12'.

BINS & HOPPERS

100—Steel Bins and Hoppers, 50 ton to 500 ton capacity, single and multiple compartment, with structural steel supports.

FILTERS & CLASSIFIERS, etc.

2—Dorrco 14' x 8' Internal Drum Type Filters.
3—Dorrco 6' x 3' Internal Drum Type Filters.
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HP	MAKE	TYPE	RPM
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300	G.E.	I K	1160
200	G.E. - (2)	SPLASH PROOF	1775
200	G.E.	I K - 12	575
150	G.E. (4)	K T 549	1760
150	WEST	HIGH TORQUE	870
150	G.E.	I K - 17	400
125	A.C.	OPEN	1760
100	G.E.	K T 524	3550
100	G.E. (2)	K T 542	1760
100	WEST	C S	1160
100	WEST	HIGH TORQUE	870
100	WEST	C S 854	690
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350	WEST	C W	435
300	WEST	C W	1175
250	G.E.	I M	580
200	A.C.	ENCLOSED	575
150	WEST	C W	1160
150	WEST	C W	870
100	G.E. (4)	M	1750
100	G.E.	I M	1175
100	WEST	C W	870
100	G.E. (2)	I M	570
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75	G.E.	I M	720
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FOR SALE

One 34E dual drum Koehring paver in good condition $12,000
Two two cu. yd. Smith mixers. Each.....250
One 23' by 66" Asphalt dryer 3,500
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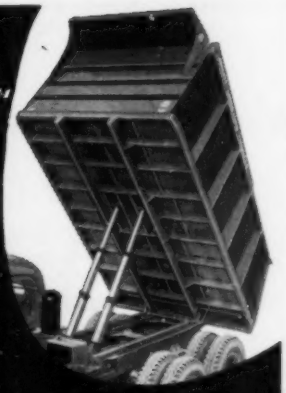

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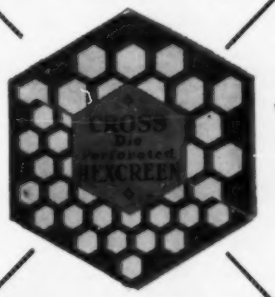

Write TODAY for complete information

CROSS Perforated Steel Segments, Sections, Decks and Parts for VIBRATING — SHAKING — REVOLVING SCREENS. *Services of Cross Field Engineer and Technical Data on Request.*

CROSS ENGINEERING COMPANY

Established 1901

Manufacturing Plant & Offices: CARBONDALE, PENNSYLVANIA

Service Agencies in Principal Cities: NEW YORK: 101 Park Avenue; MIAMI: Dupont Plaza Center

Enter 167-B on card, page 97

Announcing . . .

THE NEW PORTLAND CEMENT PLANT MAP

The new Portland Cement Plant Map so many of you have been waiting for is now available and ready for distribution.

It is 34 inches high by 40 inches wide and printed on sturdy 60 pound stock, making it ideal for hanging on an office wall or placing under the glass top of your desk. Each producing plant is listed alphabetically, by state and city. This list covers the plants in the United States, Canada, Mexico, Cuba and Puerto Rico. These plants are also indicated on the geographical map. Also included in the information on each plant is the plant's producing capacity at the end of 1957, and its estimated capacity at the end of 1958, if the plant is planning to expand; the process used to manufacture each plant's cement . . . wet or dry; and the brand names of the cement each plant produces. New plants under construction and grinding plants also appear in this group.

In addition, portland cement distributing plants located in the United States, Canada, Mexico, Cuba and Puerto Rico appear in a separate list and are also shown on the geographical map.

These maps may be purchased for the following quantity prices:

NUMBER OF MAPS	PRICE
1 — 10	$1.00 each
11 — 25	.75 "
over 25	.50 "

Just tell us the number of maps you want by submitting your request on your regular company letterhead. You can either send along your check or request to be billed later; either way is suitable to us.

PIT AND QUARRY

431 S. DEARBORN ST. • CHICAGO 5, ILL.

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In 24 month period...

CEMENT INDUSTRY SELECTS

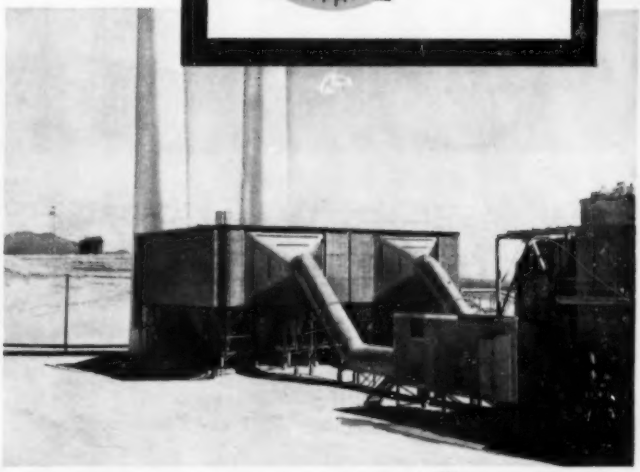
WESTERN PRECIPITATION

THREE-TO-ONE

THAT'S RIGHT—during the most recent two-year period for which figures are available, 75% of all dust and fume control systems installed by the cement industry was *Western Precipitation* equipment... 25% was divided among all other suppliers. *That's a preference of three-to-one for Western Precipitation over all other makes combined!*

But, impressive as such numerical leadership is, this is only one facet of the whole story. The industry has also entrusted to Western Precipitation know-how the solution of dust control on a wide range of new cement plant advancements...

- **COTTRELL Precipitators on a unique new application employing water conditioning for pre-treating the dry kiln gases!**
- **COTTRELL Precipitators on the nation's first A-C-L Process!**
- **First two-stage COTTRELL Precipitator installation on the new Fuller-Humboldt Preheat system!**
- **North America's first installation of selenium rectifiers on COTTRELL Precipitators in a cement plant.**
- **Two installations of COTTRELL Precipitators on a new recovery process using sludge from lime processing plants!**



Wherever dust control problems arise—whether on new or old processes—the industry thinks FIRST *of Western Precipitation Corporation.*

The cement industry is doing an outstanding job of pacing its expansion to keep ahead of demands. We of Western Precipitation are proud to be a part of this program—and are deeply appreciative of the three-to-one preference the industry has shown for Western Precipitation equipment in its current expansion operations.

WESTERN PRECIPITATION CORPORATION

Engineers and Constructors of Equipment for Collection of Suspended Material from Gases . . . and Equipment for the Process Industries

LOS ANGELES 54 • NEW YORK 17 • CHICAGO 2 • PITTSBURGH 22 • ATLANTA 5 • SAN FRANCISCO 4

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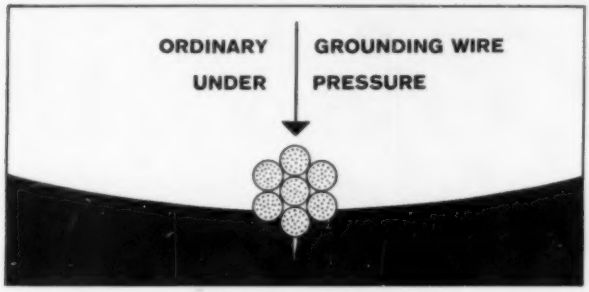
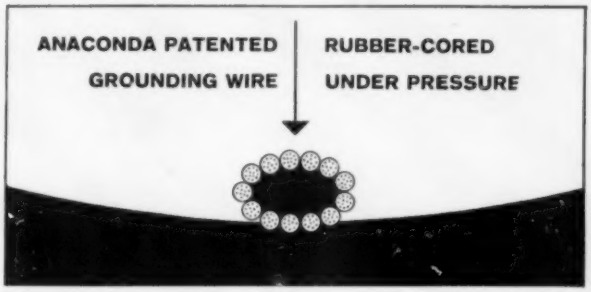
IN-USE SITUATIONS LIKE THE ONE SHOWN HERE prove why Anaconda Shovel Cable with its patented rubber-cored grounding wire outlasts ordinary cable. Under pressure, Anaconda's exclusive rubber core helps spread out the pressure—prevents internal damage. When ordinary grounding wires are subjected to the same pressure, the solid cores often cut the insulation.





Here's why Rubber-Cored Grounding Wires help Anaconda Shovel Cable last longer!

Abuse in service can seriously shorten the life of shovel cable—unless it has built-in protection, such as you find in Anaconda Shovel Cable. For grounding wire failures are one of the most common troubles. See how Anaconda engineers have solved it:

In the diagrams above you see, at left, ordinary grounding wire: a hard, compact group of stranded ropes. And at right, Anaconda patented rubber-cored grounding wire; flexible groups of stranded ropes around a soft *rubber core.*

When great pressure is applied to ordinary grounding wires, the small, hard grouping of wires bites into the insulation. Result: cut and damaged insulation. *But* with Anaconda grounding wires:

- Anaconda's rubber core acts as a cushion and helps spread out the pressure—resisting damage to the insulation.
- Individual conductor strands are protected, too, to resist the kinks that so often are the cause of fatigue failure.
- Anaconda's grounding wires provide broader contact with the shielding making a more positive ground.

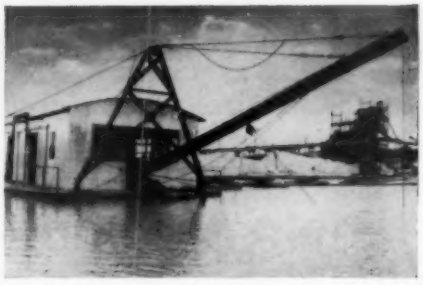
For longer lasting shovel cable, see your Anaconda distributor or the Man from Anaconda. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y. 58319

LIVE BETTER ELECTRICALLY

ASK YOUR **ANACONDA®** DISTRIBUTOR
ABOUT **SHOVEL CABLE**

Amsco pump application file —Bluff Creek, Louisiana

"Parts for our 3 Amsco pumps cost us only 8¢ per ton of material pumped..."



Says Mr. C. S. Harper, Supt. of Flint Sand & Gravel Company, Bluff Creek, Louisiana.

"And since 1928 we've never lost a day of production waiting for parts. Amsco people give us great service.

"The Amsco design is so simple, we can change-out a whole pump in 12 hours. Change impellers in 4 hours. Replace suction liners in only 2 hours.

"We've got two 12-inch, and one 10-inch electric-driven Amsco counterflow pumps with flexible couplings. One of them is 16 years old and still working fine."

Flint Sand & Gravel dredges a 60% sand, 40% gravel deposit. Uses plain suction. Lift is 65 feet over a pipeline length of 900 feet. Flint Sand & Gravel Co. has operated 2100 days without a lost time accident.

Amsco® Dredge Pump standard sizes range from 6" to 20" discharge openings. Larger sizes are also available. An Amsco pump engineer will be glad to discuss your requirements, or write for Bulletin 1052P containing full information and specifications on the Amsco line.

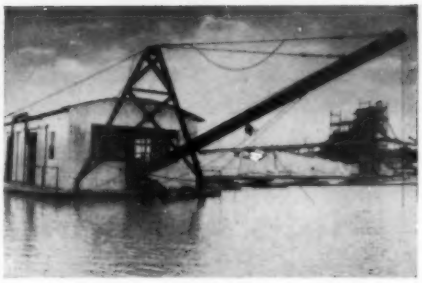
AMERICAN Brake Shoe COMPANY

AMSCO American Manganese Steel Division
Chicago Heights, Illinois

THE INDEX TO THIS VOLUME HAS BEEN REMOVED FROM THIS POSITION AND PLACED AT THE BEGINNING OF THE FILM FOR THE CONVENIENCE OF THE READER.

Amsco pump application file —Bluff Creek, Louisiana

"Parts for our 3 Amsco pumps cost us only 8¢ per ton of material pumped..."



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AMERICAN Brake Shoe COMPANY

AMSCO American Manganese Steel Division
Chicago Heights, Illinois

Lima Austin-Western 111 Crushing and Screening Plant, owned by Ronald Weaver, Dansville, Mich. High-grade specification material is being produced at an average rate of 1000 cu. yd. per 9 hr. shift.

"Lima Austin-Western will outlast and outproduce"

Says Ronald Weaver

Ronald Weaver, Dansville, Mich., has owned and operated a Lima Austin-Western 111 Crushing and Screening Plant since January, 1953. With his 4-man crew, he works all year 'round, producing specification material meeting county and State requirements.

Mr. Weaver says: "I have owned and operated other plants, and I am convinced that over a period of time a Lima Austin-Western will outlast and outproduce other comparable machines. I depend on this plant to show a reasonable profit, and it has produced all that can be expected.

"It is truly a portable machine. Not long ago I moved the 111, power plant, feeder, two dump trucks, dragline, bulldozer and other miscellaneous equipment 20 miles. The time involved in dismantling the equipment, loading, setting up, and resuming operation was only 3 hours.

"The quality of the equipment is shown by the fact that it has never required a major overhaul since it went into operation 5 years ago. But the most obvious reason for buying and using Lima-Austin-Western is the fine relationship and cooperation between not only the dealer and the operator, but more important, the manufacturer, the dealer and the operator."

Get the high-tonnage, low-cost Lima Austin-Western story from your nearby distributor . . . or write direct.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA AUSTIN-WESTERN Crushing, Screening and Washing Equipment

BALDWIN · LIMA · HAMILTON

CONSTRUCTION EQUIPMENT DIVISION • LIMA, OHIO

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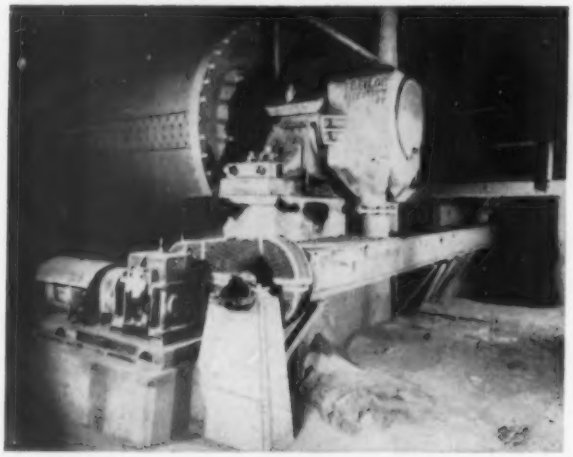
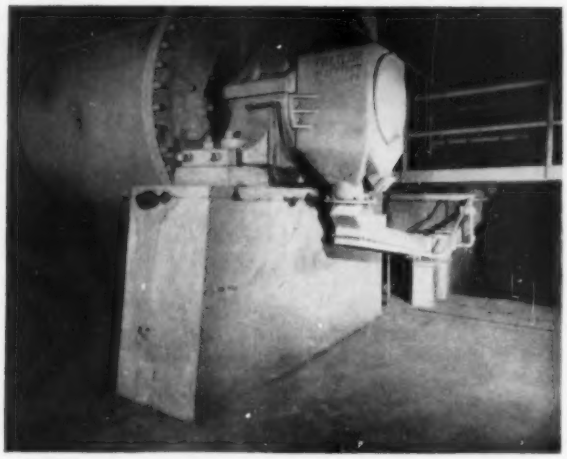
The Arithmetic of Materials Handling



BEFORE: **Dirt, noise and mechanical breakdown** were constant problems in this cement plant, where two mechanical conveyors were used to collect raw materials. A 5 h.p. motor driving auxiliary equipment wasted valuable space and power, required frequent maintenance. Spillage clean-up wasted costly man-hours.



AFTER: **Clean, simple, quiet.** Notice the difference two 8" F-H Airslide® fluidizing conveyors have made. No dangerous moving parts. Nothing to lubricate. Auxiliary equipment and foundations are gone. Power needs are now only ⅛ of previous needs. Fluidizing saves wear and maintenance.

AIRSLIDE® Fluidizing Conveyor

minimizes material loss . . . maintenance . . . moving parts

If you are now handling dry, pulverized materials, the F-H Airslide Fluidizing Conveyor can help you stop noise, and air-pollution, as well as speed flow and reduce maintenance cost.

Simplicity Itself

F-H Airslides fluidize dry, pulverized materials with low pressure air.

These materials literally flow at high speed, down the inclined conveyor. Power requirements are small.

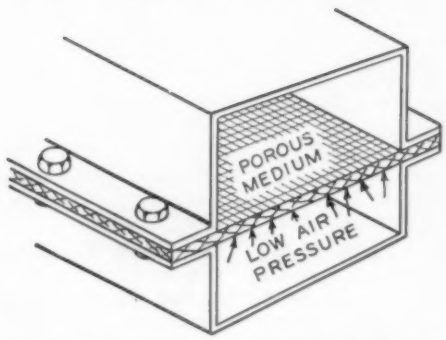
Flexibility, Low Cost

For unlimited applications, Airslide conveyors take up little space, and can be used singly and in combination with other Fuller pneumatic conveying systems. The movement of fluidized material can be around corners, between floors, through walls—nearly any conveying distance.

Better Housekeeping

Can Fuller conveying systems help eliminate your housekeeping problems—cut your maintenance and handling costs? Write today, outlining your problem in handling dry, finely-divided materials. Fuller will gladly make appropriate recommendations.

"Pulverized Materials Flow Like Water!"



AIRSLIDE PRINCIPLE: Porous supporting medium divides conveyor section into two "compartments". Dry material flows down inclined conveyor, fluidized by low-pressure air entering beneath porous medium.

FULLER COMPANY GENERAL AMERICAN TRADE MARK

Fuller ....pioneers in harnessing AIR

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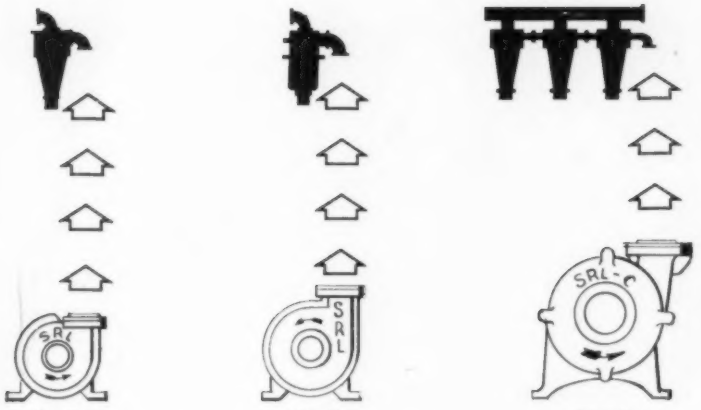
"See Chemical Engineering Catalog for details and specifications".



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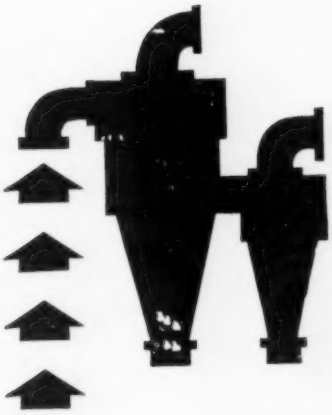
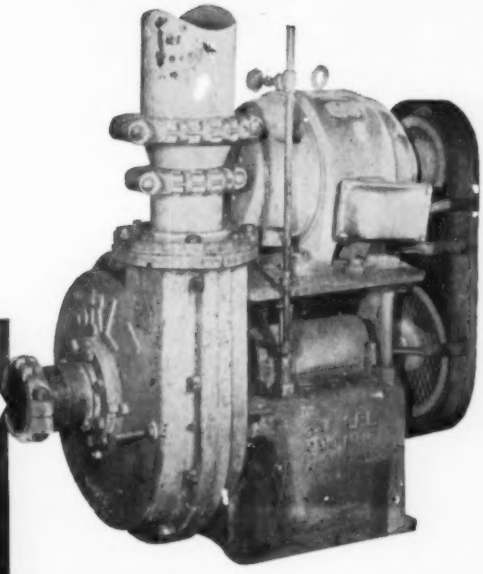


STANDARD for CYCLONE SERVICE...



Sixteen 6" x 6" non-clogging Denver SRL Pumps (eight operating, eight stand-by) deliver mill discharge to the cyclones. Available with pressure molded rubber or alloy iron runners.

Write for Bulletin No. P9-B10.

DENVER *SRL* PUMPS

FOR YEARS RECOGNIZED AS THE MOST EFFICIENT PUMP FOR HANDLING SANDS AND SLURRIES.

"The firm that makes its friends happier, healthier and wealthier"

DECO ENGINEER — DENVER EQUIPMENT 24 HOUR SERVICE COMPANY

DENVER EQUIPMENT CO.

1400 Seventeenth St. • Denver 17, Colorado

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TOMORROWS BULLDOZER—TODAY!

"THE BULLDOZER OF THE FUTURE" this is the way one Road Dept. official described the Eimco 105 when he saw it operate on competitive tractor tests. Here, once again, the Eimco 105 Dozer has demonstrated superiority over conventional type tractors. In job after job, the 105 consistently proves that its simplicity of operation, smooth power flow, visibility, maneuverability and reduction in operator fatigue is the difference between marginal production and profitable production.

The work site consisted of a steep incline with rock outcropping in big slabs. The bottom ends of the rocks were deeply embedded and required maximum tractor effort to remove them.

Bulldozing down the slopes, the torque converter drive of the 105 enabled it to pick up a capacity load and move down the slope ahead of the competitive tractors with their outmoded conventional type drives.

Throughout the test — straight bulldozing, removing rocks and maneuvering — the 105 managed everything that came its way and did it with the least amount of operator effort. In direct contrast, the competitive tractor operators were constantly clutching, changing gears and braking to accomplish their tasks.

Eimco's Unidrive constant mesh transmission gives variable speed independent track control without clutching and shifting. Let us demonstrate this tractor.

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

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